Feb. 28, 1956 A. C. MOORE 2,736,483

SHIPPING CONTAINERS

Filed March 16, 1950 3 Sheets-Sheet 1

FIG. 1.

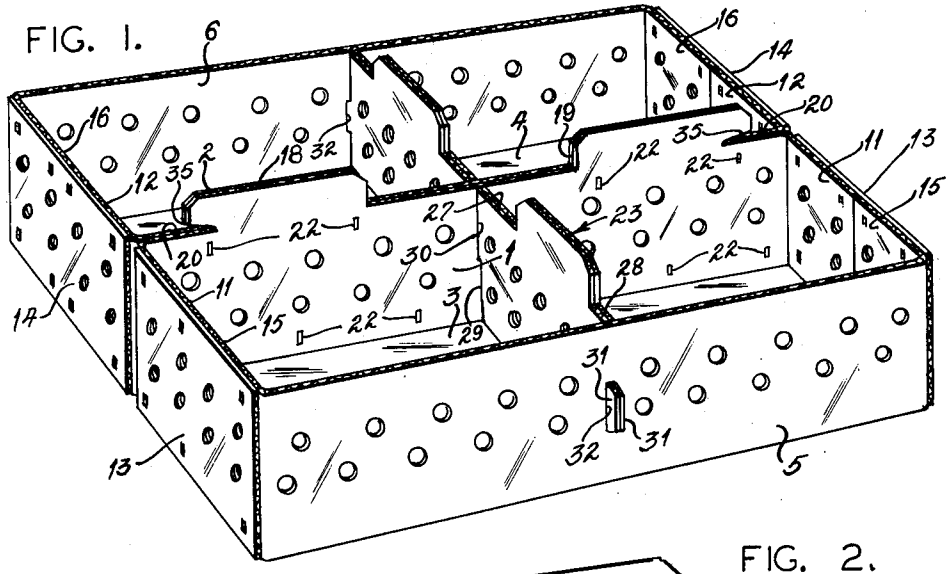


FIG. 2.

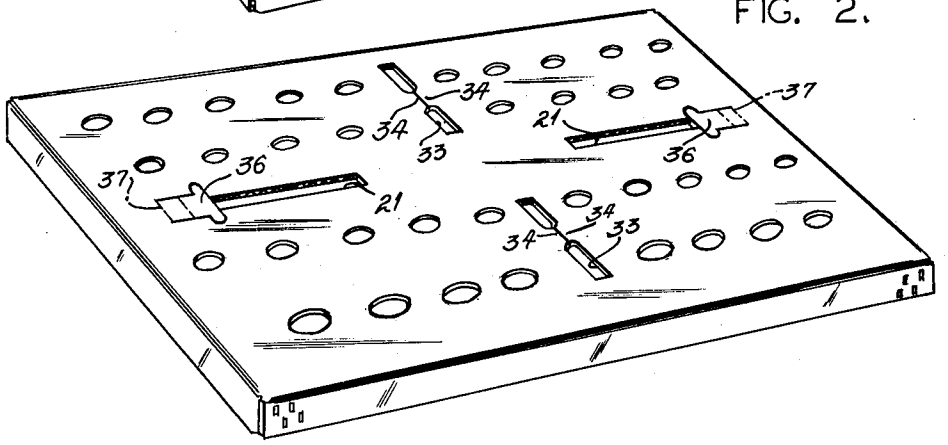


FIG. 3.

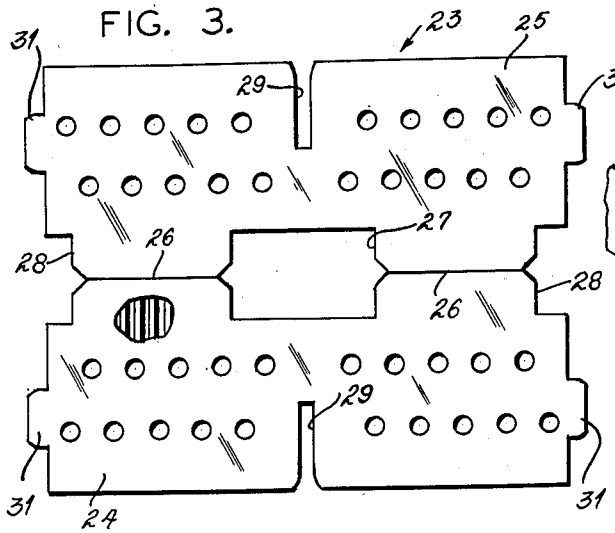
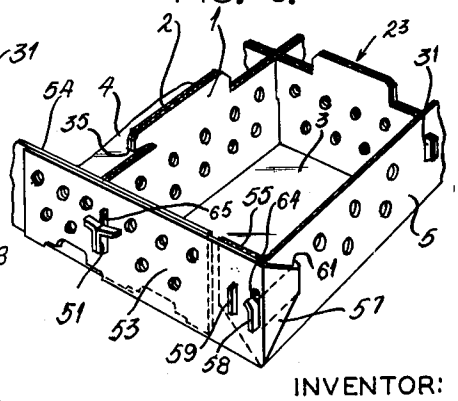


FIG. 6.



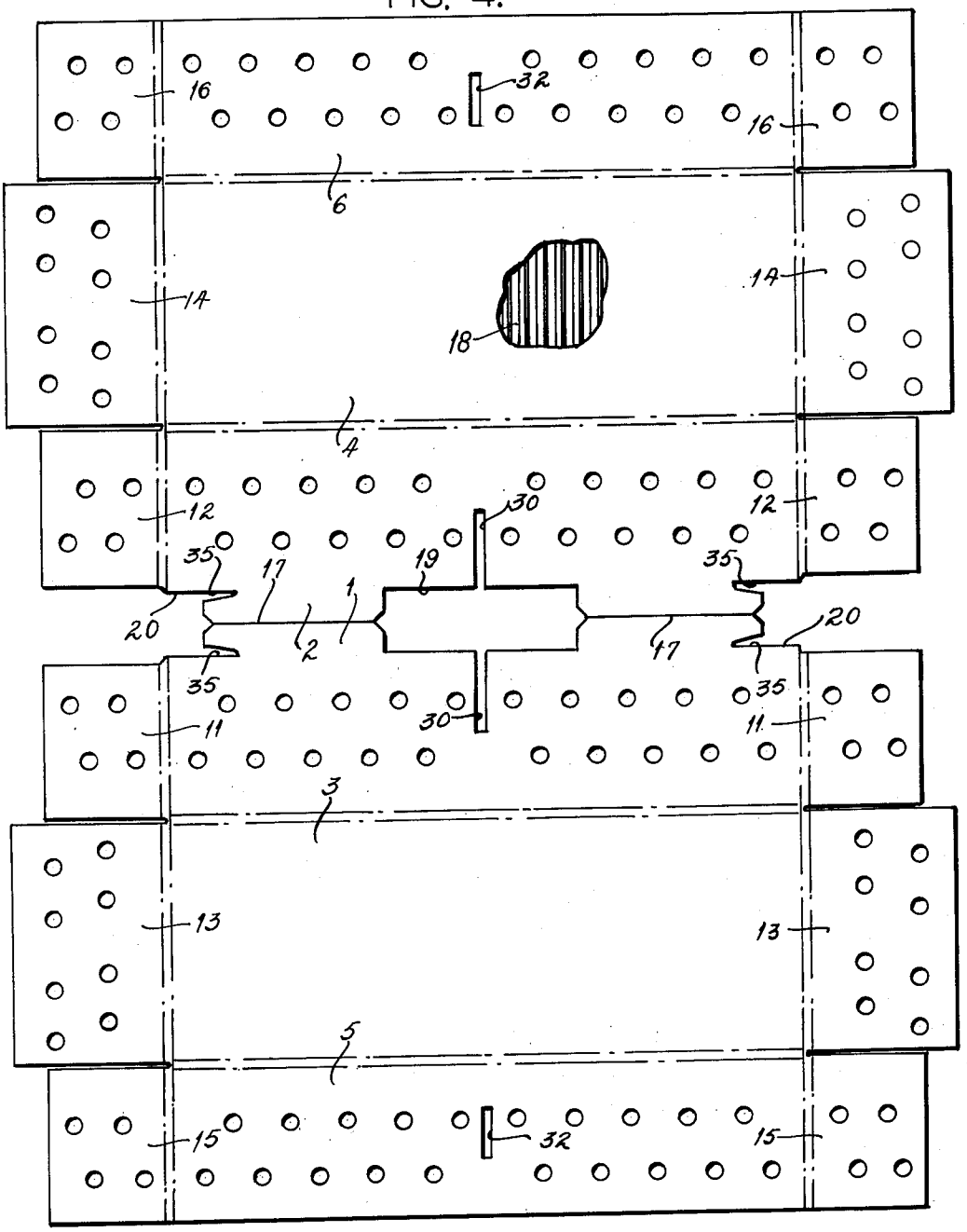
INVENTOR:
ARTHUR C. MOORE
BY Brumbaugh and Sutherland
ATTORNEYS.

Feb. 28, 1956 A. C. MOORE 2,736,483

SHIPPING CONTAINERS

Filed March 16, 1950 3 Sheets-Sheet 2

FIG. 4.



INVENTOR:
ARTHUR C. MOORE

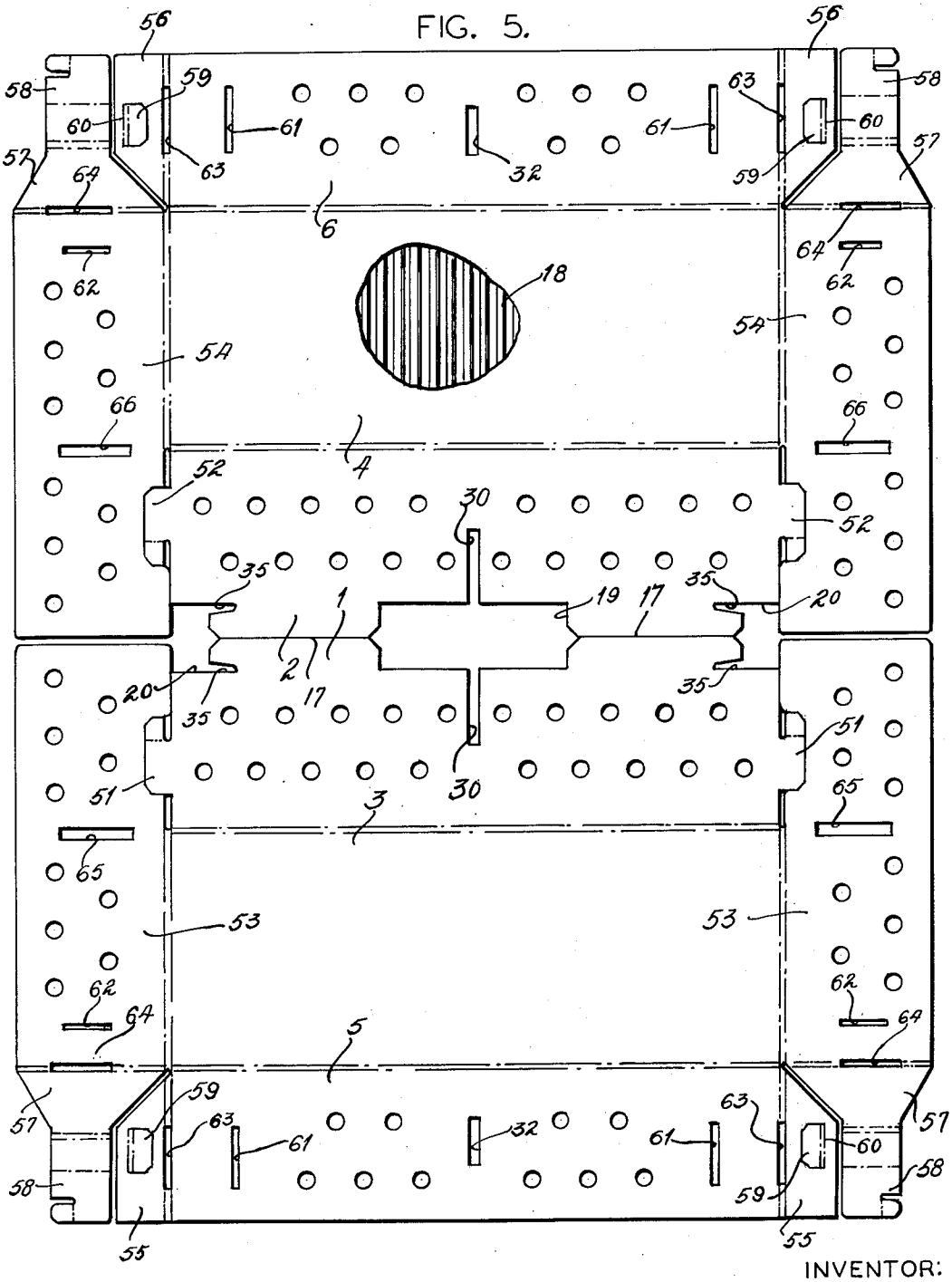
BY Brumige and Sutherland
ATTORNEYS.

Feb. 28, 1956 A. C. MOORE 2,736,483

SHIPPING CONTAINERS

Filed March 16, 1950 3 Sheets-Sheet 3

FIG. 5.



INVENTOR:
ARTHUR C. MOORE

BY Bruninga and Sutherland

ATTORNEYS.

United States Patent Office

2,736,483

Patented Feb. 28, 1956

2,736,483

SHIPPING CONTAINERS

Arthur C. Moore, Terre Haute, Ind., assignor to Highland Box Co., Highland, Ill., a corporation of Delaware

Application March 16, 1950, Serial No. 149,939

8 Claims. (Cl. 229—6)

This invention relates generally to paperboard containers, and particularly to containers for shipping baby chicks.

Baby chick shipping containers have heretofore been manufactured in a variety of forms, consisting essentially of a ventilated paper box, divided by partitions into compartments (of size sufficient to accommodate twenty-five baby chicks), and having a ventilated lid with some means for maintaining a spaced relation between a given box and another which may be superimposed upon it. Heretofore the partitions which divide the box into compartments have been formed as separate elements, and appropriately fastened to the side and end walls of the chick box; but in shipping and handling, the weight of the cargo imposes a strain on the bottom of the box, slightly separating it from the lower edge of the partition, so that frequently the toes of the chick are caught and pinched between the partition and the bottom, and the foot of the chick permanently damaged.

Chick boxes are conventionally delivered to the hatcheryman in knocked-down condition, and are assembled or set up by the hatcheryman as needed. The knocked-down condition enables the shipper, the transporter, and the storer to effect a very substantial saving in space. Consequently the workers in the art have endeavored to construct their knocked-down chick boxes in a manner such that a flat blank may, with the minimum of effort and tedium, be converted into a suitable box. In setting up the chick box from the flat blank, staples are sometimes employed to connect the several parts in their set-up relation, while in other cases, stapleless boxes are provided by appropriately forming the flaps so as to interlock with each other and retain the box in set-up condition, with sufficient rigidity to withstand the rigors of travel and handling while laden. Stapleless boxes, as heretofore provided, have been found objectionable by some hatcherymen, however, because the arrangement of interlocking flaps is less positive than staples, and the corner structures are inherently weak.

The object of the present invention, generally stated, is to provide a chick box which overcomes the difficulties and objections above indicated.

Another object of the invention is to provide a chick box wherein toe pinching of the chicks will be minimized.

A further object of the invention is to provide a chick box which may be readily set up and secured in set-up position, without the use of staples or other extrinsic fastening means.

Other objects will become apparent to those skilled in the art when the following description is read in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a chick box, constructed in accordance with one embodiment of the invention;

Figure 2 is a perspective view of the lid for the box shown in Figure 1;

Figure 3 is a plan view of an auxiliary partition blank for use in four-compartment chick boxes, such as shown in Figure 1;

Figure 4 is a plan view of a blank, cut and scored to provide the bottom, the side walls, the end walls, and the central partition of the chick box shown in Figure 1;

Figure 5 is a plan view of a blank, corresponding in general to that shown in Figure 4, but constructed and arranged to produce a stapleless box; and

Figure 6 is a perspective view of one corner section of a box utilizing the blank shown in Figure 5.

In accordance with one aspect of the present invention, the bottom and the central partition of a chick box are integral, being formed from a unitary blank of paperboard cut and folded double, so that the line of fold constitutes the upper extremity of the partition members, the adjacent material constitutes the body of the partition members, and therebeyond the material is folded at right angles to provide half-bottoms on each side of the central partition. Preferably the blank is of sufficient extent, laterally and longitudinally, that, beyond the half-bottoms, the side walls and end walls may also be integral with the bottom and central partition.

A particular feature of the invention resides in the construction of the partition from two plies of corrugated paperboard, folded as aforesaid, so that the fold line constitutes the upper extremity of the partition members, but cut at said fold line, so as to expose the ends of the corrugated layer. In effecting such cut of the usual sheet of corrugated paperboard (which consists of a corrugated layer, adhered between two flat liners), the outside liner and the corrugated layer are severed along the line of fold, but the inside liner is left intact. Thus the two-ply partition is secured together at the upper edge by the intact inside liner, but there is no crushing of the corrugations when the fold is made, and consequently their full strength is preserved. Moreover, the exposure of the ends of the corrugations at the upper edge of the partition provides a desirable friction surface, which retards slippage between two superimposed boxes. A partition member of the character described is of substantial advantage, even in boxes where the partition is not integral with the bottom.

Chick boxes of the general character just described may be secured in set-up position either by means of staples, or by the provision of interlocking flaps, or otherwise, as desired. The invention further contemplates a stapleless corner construction wherein the end walls and side walls are integral with the bottom, and provided with interlocking flaps and apertures which not only secure the box in assembled position, but also rigidify the corners, which are subject to much abuse in handling. The corner construction contemplated by this invention is of advantage not only with boxes wherein the central partition is integral with the bottom, but also with the conventional separable partition boxes.

The invention also contemplates the provision of a lid, arranged to cooperate with upstanding parts of the partitions, which extend through the lid and are interlocked with the lid, without the use of extrinsic fastening means.

Referring now to Figures 1, 2, and 4 for an illustrative embodiment of the invention, a single blank of corrugated paperboard is cut and scored, as shown in Figure 4, to provide an integral double central partition, the bottom, the end walls, and the side walls of the box. The bank is shown in Figure 4, and includes central partition sections 1 and 2, half-bottom sections 3 and 4, and side wall sections 5 and 6. Each of the sections 1 to 6 inclusive is provided with flaps at each end thereof, which, when folded and connected, constitute the end walls and corners, to-wit: section 1 with flaps 11, section 2 with flaps 12, section 3 with flaps 13, section 4 with

flaps 14, section 5 with flaps 15, and section 6 with flaps 16.

Between sections 1 and 2, the blank is centrally folded along line 17. In order to facilitate the central folding and eliminate crushing of the corrugations, the fold line 17 is formed by cutting the sheet of material incompletely through, i. e., through the outside liner and the corrugated layer, but not through the inside liner. Thus, when the blank is folded double along line 17, the corrugations 18 are exposed endwise, as clearly shown in Figure 1, at the upper edge of the partition.

In the embodiment shown, the partition sections 1 and 2 extend substantially above the top line defined by the end walls and side walls, so as to provide spacing members disposed above the plane of the lid, which will seat upon said top line. In order to provide such spacing members, the blank shown in Figure 4 has a central cutout, as shown at 19, and the fold line 17 is foreshortened at each end by a cutout 20. With the construction just described, a lid of any suitable construction, such as that shown in Figure 2, may be provided with apertures 21 proportioned to pass over that portion of the central partition which projects above the top line of the side and end walls, so that the lid is seated upon the upper edges of the side and end walls and the portions of the partition members which are defined by the cutouts 19 and 20.

In setting up the box from the blank shown in Figure 4, the blank is first folded double along line 17, so that sections 1 and 2 are parallel and contiguous. The bottom sections 3 and 4 are then bent at right angles to sections 1 and 2 respectively, so as to extend in opposite directions from the contiguous sections 1 and 2. Sections 5 and 6 are then turned upwardly at right angles to sections 3 and 4. Flaps 11, 13, and 15 are turned at right angles to their respective body sections, and secured together, as by stapling. Likewise, flaps 12, 14, and 16 are turned at right angles to their respective body sections and secured together, as by stapling. The sections 1 and 2 are secured together in contiguous relationship, as by staples 22, in order thereby to prevent the sections of the box, on opposite sides of the central partition 1—2, from folding relative to each other. In order to further rigidify the box against the folding last mentioned, a cross partition may be interlocked with the opposite side walls. Accordingly, a cross partition 23 is provided, and interlocked with side walls 5 and 6. The partition 23 may be, and preferably is, formed in like manner to the central partition of the box, that is, by incompletely severing a blank of corrugated paperboard along a central fold line. Referring to Figure 3, the blank for the cross partition 23 is shown, and consists of two sections, 24 and 25, having a central fold line 26 incompletely cut as above indicated, and provided with a central cutout 27 and end cutout 28, so that, in like manner to the central partition above described, there are portions on the partition 23 which extend above the top line of the box and expose, at their upper edges, the ends of the corrugations. In order to interlock the partition 23 with the central partition 1—2 of the box, the partition 23 is provided with a pair of slots 29 at opposite edges thereof, which, when the blank is folded up, open downwardly to interlock with corresponding slots 30 in sections 1 and 2 of the box blank. Each of sections 25 and 26 of the cross partition blank is provided with a pair of tongues 31, proportioned to pass through apertures 32 in sidewall sections 5 and 6 and, if desired, be distorted therebeyond.

To accommodate the upwardly projecting portions of partition 23, the lid is provided with apertures 33. In order to secure the lid against accidental displacement, the slots 33 are provided with a pair of projections 34, which frictionally engage the vertical sides of partition 23 as the lid is applied thereto. In the process of applying the lid, the projections 34 bend upwardly, so as to impose a wedging action, resisting the removal of the lid. In order to interlock the lid with the upstanding projections on partitions 1—2, the latter may be undercut, as shown at 35, to accommodate a tongue 36, severed on three sides from the substance of the lid, but left intact along fold line 37. Accordingly, with the tongue 36 arranged as shown, when the lid is applied over the upstanding projections of the partition members, the flaps 36 are automatically bent upwardly, and when the lid is seated upon the top edges of the side and end walls, the flap 36 is tucked into the undercut 35.

Referring now to Figures 5 and 6 for a further embodiment of the invention representing a stapleless construction, the blank shown in Figure 5 is identical with that shown in Figure 4 insofar as the sections 1, 2, 3, 4, 5, and 6 are concerned, except as hereinafter indicated. In this embodiment, however, the sections 3 and 4 have end flaps 53 and 54, respectively, which have integral parts overlapping the adjacent sections 1 and 5 (in the case of flap 53), and 2 and 6 (in the case of flap 54). Section 1 is provided at each end thereof with a tongue 51, and likewise section 2 with tongue 52. The tongues 51 and 52 are severed from the adjacent material constituting a part of flaps 53 and 54 respectively. Sidewall sections 5 and 6 are, in this embodiment, provided with short flaps 55 and 56, which latter are overlapped by a subflap 57 having a tongue portion 58, all integral with flap 53. If desired, the flaps 55 and 56 may be provided with a tongue 59, severed on three sides, but left intact along line 60. To receive the tongue 58, section 5 is provided with an aperture 61, and to receive tongue 59, flap 53 is provided with an aperture 62. In the embodiment shown, it is contemplated that the tongue 58 pass from the outside of the box through aperture 61 to the interior, and then again to the exterior at the corner, and for the latter purpose, the juncture between section 5 and its flap 56, and the juncture between flap 53 and subflap 57, are provided with apertures 63 and 64 respectively.

In setting up the box in accordance with this embodiment, the folding of the sections 1, 2, 3, 4, 5, and 6 proceeds as in the previous embodiment. The flaps 53 and 54 are then successively folded up, so that slots 65 and 66 therein respectively pass over tongues 51 and 52 (which, at this time, are contiguous and may be regarded as one). When the tongues 51 and 52 have passed through the slots 65 and 66, the upper extremities of the tongues may be bent endwise to lock them in position. The flaps 55 and 56 on the sidewall members 5 and 6 are next bent at right angles to said sidewall members, so that they lie within flaps 53 and 54, respectively, at the corners. In this operation, the tongues 31 on the auxiliary partition (if such is provided) are passed through slots 32 and locked. With the parts in the position just described, tongue 58 is threaded through slot 61 from the outside to the inside, and tongue 59 is threaded through slot 62 in flap 53 from the inside to the outside, and locked there. While in the embodiment shown the tongue 58 is long enough that, after passing through slot 61, it may be passed on from the inside to the outside through slots 63 and 64, and locked there, it will be understood that tongue 58 may be foreshortened so that it is locked immediately at the inside of the side wall adjacent slot 61. While the parts have been described with sidewall flaps 55 and 56 on the interior, and subflap 57 on the exterior, it will be understood that the disposition of the parts may be reversed.

Where desired, the boxes herein disclosed can be provided with any suitable corner spaced, associated with either the lid or the box body. A suitable spacer associated with the lid is disclosed in the copending application of Andrew E. Miller, Serial No. 53,241. Alternatively, the corner spacer may be made integral with the box body by extending the flaps 55 and the adjacent

few inches of sidewall 5 downwardly (as shown in Figure 5) for a distance corresponding to the distance between line 17 and the horizontal shoulder of cutout 19; the flaps 56 and their adjacent few inches of sidewall 6 are correspondingly extended upwardly, so as to provide, at each corner, a post of right angular horizontal section extending above the lid of the box for the same distance that the partition members so extend. In lieu of thus extending the flaps 55 and 56, or in addition thereto, flaps 57, together with the adjacent few inches of the end wall, may be correspondingly extended in the horizontal direction (as seen in Figure 5). In case such corner posts are provided, the lid must be cut out at the corners to accommodate the posts.

From the foregoing description, those skilled in the art should readily understand the construction, operation, and advantages of the invention, and realize that it accomplishes its objects. While two complete embodiments of the invention have been disclosed in detail and reference made to certain alterations, it is not to be understood that the invention is limited to the details as specifically described or shown, but that the principles of the invention are applicable at large to knocked-down cartons for any purpose, without departing from the essentials of the invention as defined in the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A chick box comprising a blank of double-faced corrugated paperboard, said blank being centrally folded upon itself along a line transverse to the corrugations to form a partition extending integrally the length of the box with the corrugations running vertically, a bottom panel extending integrally from each side of said partition the length of the box, an integral side panel extending vertically from each of said bottom panels, a pair of integral end panels extending vertically from each of said bottom panels, and a second partition member of double-faced corrugated paperboard extending transversely of the first partition with its corrugations also running vertically, said partitions having upper portions which project above the upper edges of said side and end panels to support a second box in spaced relationship.

2. A chick box as set forth in claim 1, wherein said folded upper projecting portions of said integral partition is partially severed along the fold line to expose cut ends of the corrugations.

3. A chick box as set forth in claim 1, wherein said second partition comprises a sheet of double-faced corrugated paperboard folded centrally upon itself along a line transverse to the direction of corrugations and partially severed along the fold to expose cut ends of the corrugations at the folded upper projecting portions thereof.

4. A chick box as set forth in claim 1, wherein said end panels are flaps extending from the bottom panels on opposite sides of the integral partition, said flaps overlapping each other at the end of the integral partition and having aligned apertures opposite the ends thereof, said integral partition being provided with tongues at its ends which engage within said aligned apertures to connect the end wall flaps together.

5. A chick box as set forth in claim 1, wherein each end panel is provided with a corner flap overlying a side panel and having a terminal tongue engaged in the side panel, and wherein each side panel has a corner flap overlying an end panel.

6. A chick box as set forth in claim 5, wherein the corner flaps projecting from the side panels also have tongues engaged respectively in the end panels.

7. A chick box as set forth in claim 5, wherein each of said terminal tongues is engaged in the side panel, the side corner flap, and the end panel.

8. A chick box as set forth in claim 1, wherein the folded upper projecting portions of said integral partition are undercut along a line coplanar with the upper edges of said side and end panels, and further including a lid having apertures shaped to fit over said upper projecting portions of both partitions, said lid having an integral tab adjacent an end of two of said apertures, and said tab being movable into and out of said undercut to lock the lid upon the box.

References Cited in the file of this patent

UNITED STATES PATENTS

1,476,750	Casey	Dec. 11, 1923
1,994,318	Loth	Mar. 12, 1935
2,046,485	Ringler	July 7, 1936
2,077,588	Schaefer	Apr. 20, 1937
2,155,450	Shoemaker	Apr. 25, 1939
2,322,239	Kramer	June 22, 1943
2,427,397	Ferguson	Sept. 16, 1947
2,494,730	Thursby	Jan. 17, 1950
2,527,221	Huye	Oct. 24, 1950
2,536,384	Meller	Jan. 2, 1951
2,565,053	Stenger	Aug. 21, 1951