April 21, 1942. N. F. SCHAEFER 2,280,544

CHICK BOX STRUCTURE

Filed Dec. 15, 1938

FIG. 1

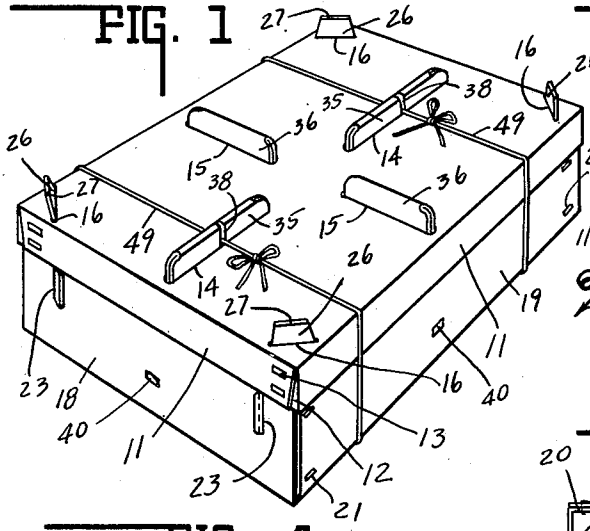


FIG. 2

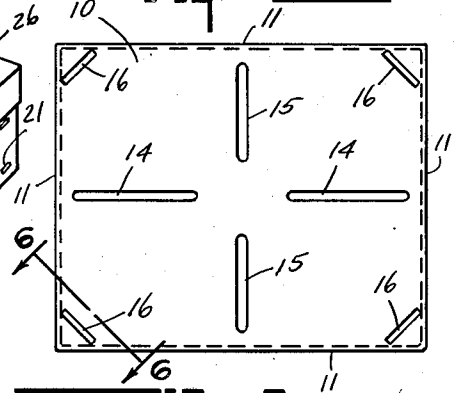


FIG. 3

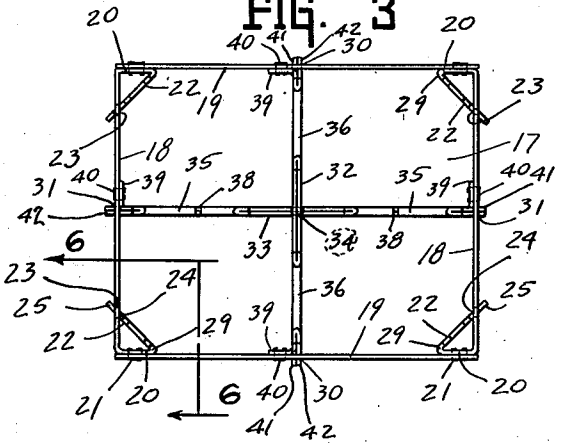


FIG. 4

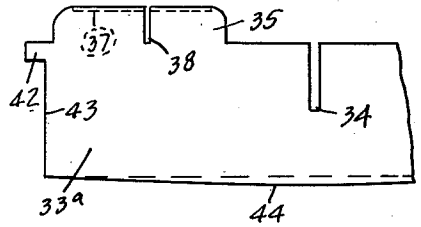


FIG. 5

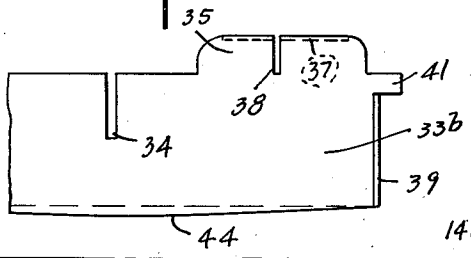


FIG. 6

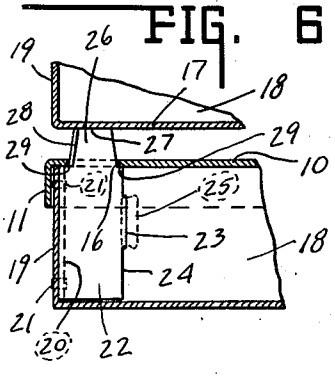
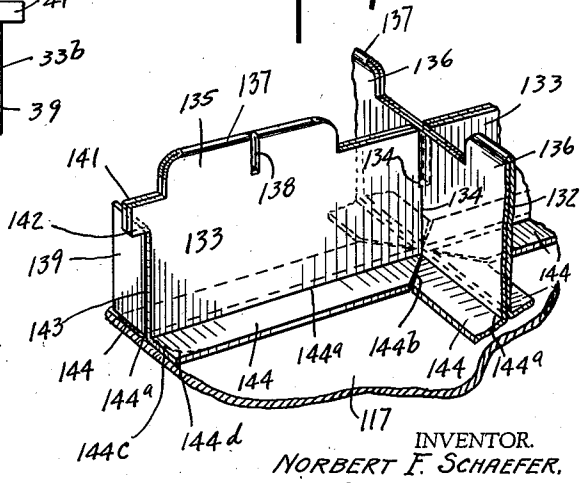


FIG. 7



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CHICK BOX STRUCTURE

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5 Claims. (Cl. 229—6)

This invention relates to a chick box structure which in the preferred form is capable of stacking in so-called ventilated relation.

The chief object of this invention is to provide a chick box wherein corner smothering and toe pinching of the chicks is prevented.

Another object of the invention is to provide suitable means which herein project through the cover of such a box and which are formed integral with the box bottom structure and the partitions whereby the same serve spacing means for maintaining a superposed box in spaced relation so that the lower and supporting box may be cover ventilated, as that term is commonly employed in this art.

For the purpose of clearness, there is omitted from this disclosure the various ventilating apertures and their method of fabrication, et cetera, in and from said cover and the various side and end walls of such a container, this being old and well known in the chick box art.

One embodiment of the invention utilizes the corner biasing structure as a box spacing element. This corner biasing structure not only eliminates the corner arrangement and keeps the chicks from crowding therein with resultant smothering thereof, but forms an additional cover support and furthermore serves as an additional lock between adjacent end and side walls in addition to the conventional connections.

The toe pinching feature is incorporated in the partition. It essentially consists of making the lower edge of the partition, where it engages the body of the box bottom, of such conformation that when the cover is placed on the box bottom, the lower edge of the partition is forcibly engaged throughout its length with the top surface of the body of the box so that there is no gap between the two in which the chicks can accidentally position their toes therebetween.

A further feature of the invention consists in providing upwardly directed projections upon the partitions which extend through correspondingly positioned slots in the box cover and the upper edges of which projections serve as spacers for a superposed box and further providing in said exposed projections a notch adapted to serve as a locater for a tying member such as a string, or the like, if, as and when used, and which when used, additionally serves to force the lower edge of the partition into body top surface engagement for preventing chick toe pinching.

Another feature of the invention consists in slotting each of the walls at their upper edge so that each partition may have a lateral projection seatable therein which serves as a stabilizing element for said partition and as a locating arrangement and which is of a length sufficient to project slightly beyond the wall in which it is seated, and which constitutes a portion for frictionally engaging the inside face of the cover rim when mounted thereon for frictionally retaining the cover thereon. A portion of such partition may also be directed laterally of the major portion at the end and thus lie parallel to the adjacent wall and be suitably secured thereto. When all of the aforesaid partition and corner structural arrangements are embodied, it will be observed that the side and end walls of the box are trussed against lateral movement relative to the plane of the said wall and are tied to prevent lateral movement away from the opposite wall and furthermore said corner arrangements serve as corner trussings and reenforcements for the adjacent walls at each corner of the box.

A further feature of the invention consists in the construction readily lending itself to the formation and use of partition of dual thickness and the two thicknesses being preferably formed from a single sheet, said thicknesses being connected together at the top of the cover projecting portions of the partition so as to form a smooth upper surface to be engaged by the superposed box or to be engaged by the thumbs of the two hands when the fingers of said hands engage the lower edge of the cover rim for elevating the cover relative to said projections to readily release the same therefrom in cover removal.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims.

In the drawing, Fig. 1 is a perspective view of a covered chick box embodying the invention.

Fig. 2 is a top plan view of the cover looking down upon the same.

Fig. 3 is a top plan view of the box bottom looking into the same.

Fig. 4 is a side elevation of a portion of one of the partition structures embodying one form of the invention.

Fig. 5 is a similar view taken from the opposite side thereof, the partition specifically illustrated herein being shown as of dual layer thickness.

Fig. 6 is a transverse sectional view taken on lines 6—6 and in the direction of the arrows of Figs. 2 and 3, and illustrates not only the corner reenforcement and smothering prevention arrangement but also illustrates the additional

cover support and a portion of the superposed container supported by the upper projection of the corner trussing arrangement.

Fig. 7 is a perspective view looking into a bottom corner of the box adjacent the intersecting partition structure and illustrating a modified form of pinch preventing means.

In the drawing 10 indicates the top of a cover having downwardly directed flange portions 11 at each edge forming a rim when connected together and such connection may be in any suitable manner such as by end flaps 12 of certain rim portions ', secured as at 13. The cover includes two pairs of spaced slots transversely arranged, one pair being indicated by the numeral 14 and the other pair by the numeral 15. These slots extend from the center of the top toward the edge and are perpendicular thereto.

Adjacent each corner of the top 10 is a biased arranged slot 16. The length and widths of these slots and the length of all of the aforesaid slots are adequate for the purposes hereinafter described and are adapted to slidably receive certain projecting portions which project therethrough and terminate in a common plane above the plane of the top 10 of said cover when mounted on the box bottom. Such projecting portions serve as spacing means for spacing a superposed box from the cover provided box therebeneath and permit ventilation of the interior of the lower supporting box through cover apertures, not shown herein.

Reference now will be had to Figs. 1 and 3. In the latter figure the numeral 17 indicates a body portion, 18 a pair of end walls integral therewith and extending upwardly at right angles thereto. The numeral 19 indicates similarly formed and positioned side walls. Herein the end walls include extensions 20 which are positioned at right angles to the supporting end wall and parallel and herein interiorly positioned relative to the adjacent side walls. The portions 20 and the side wall are suitably secured together as indicated at 21 in Fig. 1. This forms a conventional box body arrangement.

In the present invention, however, the portion 20 includes an extension 22 which is integral with the portion 20 and is directed angularly thereto, to the side wall and to the end wall. The end wall is slotted as at 23 and projecting from the edge 24 of the portion 22 contacting the inside of the end wall 18 is a tongue 25 which may be headed or T-shaped, as it were, to yieldingly lock portion 22 to the end wall when the projecting tongue is inserted in the slot 23. The resultant construction is a triangular reenforcement, as it were, at each corner of the box and it prevents the chicks from crowding into said corner and in effect constitutes a rather rough approximation, as it were, of a circular interior type container.

Each portion 22 intermediate the ends and at its upper edge is provided with an upwardly directed projection 26, the same providing an upper edge 27 and having inwardly tapering side edges 28 to facilitate pasage through the slot 16 of the cover when the cover is telescoped upon the side walls of the box body. All four corner cover exposed projections thus extend across the corners, as it were, and the slotting therefor does not appreciably weaken the cover box itself because so closely positioned relative to the corner of the cover. These four corner projections all have coplanar upper edges 27.

As herein illustrated also, the projection 26 is not coextensive with the width of the portion 22, thereby providing adjacent each side or end wall as the case may be, a ledge portion 29 which also serves as a cover support in addition to the top edge of the portion 20.

Reference now will be had more especially to Figs. 3, 4 and 5 with supplementary reference to Figs. 1 and 2. In Figs. 3, 4 and 5 there is illustrated a preferred form of partition arrangement which is of non-toepinching character and which furthermore has certain other features set forth initially herein. While this preferred form is illustrated as of dual layer character, it may be of single layer character without departing materially from the several features of the invention except as will be obviously imposed when a dual layer construction, as hereinafter to be described, is employed.

Herein each top edge of the side walls 19 is notched as at 30 and each top edge of the ends is similarly notched as at 31. A pair of transverse partitions, indicated generally by the numerals 32 and 33, herein include medianly positioned slots, such as indicated at 34, as in Figs. 4 and 5. It will be obvious that the slots in the two partitions 32 and 33 are oppositely directed; in other words, if downwardly directed from an upper edge in partition 33—see Figs. 4 and 5—the slot corresponding to slot 34 and in partition 32 will be upwardly directed, the two partitions when associated together have an interfitting or intersecting connection as is well understood in this art.

Each partition includes a portion extending upwardly and in predetermined relation, the same being indicated by the numeral 35 for the partition 33 and the numeral 36 for the partition 32. Two of these extensions are provided on each partition and the same are receivable by the slots 14 and 15, respectively of the cover structure. It is to be understood that the top edge 37 of the projections 35 and 36 are coplanar and lie in the same plane with the top edges 27, previously described. There is thus provided four additional and main spacing supports for the superposed box for lower box ventilation when the boxes are arranged in stacked relation.

When the partitions are of dual layer character, the layers are usually formed from the same blank and are connected together by the upper portion, as indicated by the dotted lines in Figs. 4 and 5, and by the numeral 37. This provides a smooth top surface which, as previously set forth, is the surface customarily engaged by the two thumbs of the two hands at opposite sides of the box when the cover is to be removed from the box.

This construction also has the advantage that it has considerable strength and by reason of being tied together at the top edge has greater strength than is normally present in but two layers, each of which is independent of each other, although positioned side by side because in that case the two layers may tend to separate at their upper edges and each bend angularly of the other and for example, oppositely, although, of course, a dual layer construction of independent character does provide greater strength than a partition of single layer character.

Whenever boxes are to be shipped a considerable distance, it is customary to tie the same and for that purpose, the projections 35 are provided with a slot 38 which serves as a locater for the

box structure enveloping string or tying member 49.

The doubled over character partitions of dual layer construction prevents the corrugations from being exposed in that part of the partition that extends above the lid. This insures retention of the original stiffness much longer than an exposed interior edge partition would retain its stiffness.

Reference now will be had to Figs. 3, 4, and 5, more especially, and since the partitions 32 and 33 are similar, differing only in dimensions and in the slots 38, previously described, the description relative to the partition 33 will suffice for an understanding of the construction and mounting of the partition 32. Partition 33—see Figs. 4 and 5—includes the two portions 33*a* and 33*b* which lie side by side and which are connected together as at 37 through the projections 35. They are slotted as at 36. One or both, if desired, of the layers is provided with a laterally directed wing and herein the wing of flap 39 is shown provided on the portion 33*b*. It is suitably secured by staples 40—see Fig. 1—to the end wall 18. It includes a projecting portion 41 which seats in the slot 31 in the end wall 18 and as shown in Fig. 3, it projects upwardly beyond the same for the purpose of having frictional contact with the rim 11 of the cover when the latter is seated on the box structure. The other portion 33*a* of the partition 33 includes a corresponding projecting portion 42 and it also is seatable in said notch 31 and also extends beyond the end wall for rim friction engagement.

As shown in Fig. 4, the edge 43 of this portion of the partition 33 is not provided with a lateral wing such as indicated at 39 in Fig. 5. If desired, however, it may be included and be secured similarly to the end wall when reversely positioned relative to the wing 39. The lower edges of both portions 33*a* and 33*b*, as shown clearly in Fig. 4, are not from end to end of the partition, a straight edge but may be formed otherwise, and herein the preferred formation is that of an arc and indicated by the numeral 44, and the radius of this arc is very considerable. It will be understood that, by way of example only, the perpendicular distance between the chord and the arc is about ¼" in a partition of from 24" to 36" in length.

The resultant construction, therefore, is that when the chicks are placed in the container and the cover is secured thereon, that any bowing of the bottom body 17 incident to the weight of the chicks thereon, is compensated for by the additional height of the midportion of the partition structure.

In Fig. 7 there is illustrated in perspective, a modified form of pinch preventing means and the same likewise is illustrated as modified in the dual wall partition structure. In Fig. 7 numerals of the 100 series, similar to the primary numerals, indicate or designate parts similar or identical to parts indicated by the primary numerals. In this figure, the numeral 117 indicates the bottom portion of the box body structure. The side and end walls are omitted. The numeral 132 indicates a dual partition similar to the partition 32. It, as previously described, is provided with a slot 134 extending from its lower edge upwardly. The partition 133 is transversely associated therewith and includes the slot 134 which extends downwardly from its upper edge.

Partition 133 between the intersecting slot and the wall anchored end, includes the upward projection 135 and these two projections 135 are united as indicated at 137. Projection 135 is notched as at 138. Extending in longitudinal alignment with and as a continuation of the upper edge of the partition 133, are the tongues 142. Integral with the portion 133 and extending laterally thereof is an anchoring flap 139. To correspond with the previous disclosure—see Figs. 4 and 5—the ply or layer 133*a* is shown terminating as at 143. This face or edge bears against the adjacent wall integral with the body 117.

The present form of the invention is of non-pinching character by reason of the following: Extending outwardly and laterally and integral therewith and hingedly connected thereby by the score line 144*a* is a flap 144. These flaps 144 have mitred adjacent edges 144*b* and they have square edges, preferably, 144*c*. However, such edges may be mitred or rounded as indicated by the dotted line and numeral 144*d*.

The operation is as follows: When the transverse partitions are mounted in the box bottom, the flap portions 144 bear on the upper surface of the top 117. They are in frictional contact therewith. By reason of the crease connection, it will be noted these portions 144 tend to straighten out and assume coplanar alignment with their supporting portions, to-wit, the partition proper. Thus, the tendency of these portions is to bear downwardly on the top surface of the body 117. The corners as indicated at 144*b* are so mitred that there is a slight angle therebetween. This is to insure that the two adjacent mitred faces do not engage and bind on each other but will follow the body 117 as it bows or sags incident to the weight carried by the container and ends could have corrugations crushed, if desired.

In explanation of the aforesaid, it is to be noted that if the container were positioned at all times upon a flat surface that there would be but little bowing or sagging of the bottom of the box body. When, however, from 11 to 12 pounds of weight in live chicks is placed in the box and it is lifted from one position and placed upon another box or upon a platform, the weight of the chicks intensifies the natural bowing or sagging of the bottom of the box body. Then, while the box is in the process of being lifted, chicks get their toes beneath the partitions dividing the box into four sections and when the box is again placed upon a flat surface or upon another box, the partition bottom edge (if straight or non-flanged) in the box again comes in contact with the bottom of the box body thereby causing toe pinching resulting in the death of many chicks.

In the invention claimed, however, the partitions are so arranged that even though the bottom of the box body is forcibly deformed (in one embodiment) from coplanar relation, contact is maintained substantially at all times between the partitions and the bottom of the box body independent of the natural sagging or the sagging caused in the box body by the weight of the chicks. Thereby the chance for toe pinching is considerably lessened and practically eliminated.

While the invention has been illustrated and described in great detail in the drawing and foregoing description, the same is to be consid-

ered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. In a chick box, a body portion, side and end walls arranged in box formation, the body portion having a tendency to sag centrally when the box is loaded, partition means extending from one wall to an opposite wall, and chick toe pinch prevention formation on the lower portion of the partition means including an extension of said means having a lower and body portion engaging edge conforming to the body portion sag for bowing the body portion to conform initially to the potential sag thereof.

2. In a chick box structure, the combination with a cover and a box bottom, and intersecting partitions therein, of upwardly extending spaced projections having coplanar upper surfaces and arranged in cross formation, and a box bottom corner spacer at each corner of the box bottom for the purpose described and formed as an angular extension of a wall thereof and having an upwardly extending corner biased projection, said corner projections having coplanar upper surfaces and coplanar with the partition coplanar portions for non-rocking support of a superposed box structure in spaced relation to the cover, said cover being bias slotted across each corner to seat upon the box bottom wall upper edges and expose the several projecting portions.

3. A structure as defined by claim 2, characterized by the upper coplanar surfaces having a length less than the length of slot included portions of the projections for facilitating cover seating.

4. In a chick box structure, the combination with a cover and a box bottom, of partition means therein having a plurality of spaced elongated portions projecting above the top edge of the bottom, a cover thereon and correspondingly slotted to expose the portions when seated upon the box bottom, each projecting portion having a notch therein of a depth at least equal to that elevation corresponding to the said box bottom top level, tie means about the bottom and cover and seated in each notch, and a chick toe pinch preventing formation on the bottom of said partition means and substantially coextensive therewith and engaging the bottom of the box bottom, said tie means in shipment insuring positive engagement of said pinch preventing formation with said box bottom.

5. A chick box as defined by claim 2, characterized by the cover being rimmed, the box bottom including side and end walls at their upper edges including notches, and projecting portions upon the transverse partitions and seatable in said notches and projecting beyond the side and end walls for cover rim frictional engagement.

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