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COMPLETE STICKLESS, STAPLELESS CHICK BOX

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FIG. 10

FIG. 11

FIG. 12

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This invention relates to a complete stickless, stapleless chick box which may be made of any suitable paper board material but as is now common in the industry, corrugated paper board is preferred and unless otherwise specified, it may be assumed that the box structure is of corrugated material.

The chief object of the invention is to provide a chick box and the like, of the general character indicated, wherein the same may be readily set up or fabricated in box formation and arrangement without requiring the use of any staples or like materials of anchor age common to the industry.

Another object of the invention is to provide a chick box, and the like, with means for preventing the chicks from budding in the remote corners so that loss of body heat as well as smothering is reduced to a minimum.

Another object of the invention is to provide an arrangement whereby the resulting box structures will readily stack one upon the other, even though slightly misplaced horizontally as to vertical alignment and yet will be so supported that there will be formed a resulting space between the top of the cover of the lower box and the bottom of the upper box superposed thereon. This is to provide top ventilation through the cover in a manner well known in the industry.

Another and important object of the invention is to provide a partition arrangement and so associate the same with the walls of the box that the partitions and walls are positively interlocked and all without stitching or stapling.

Another object of the invention is to provide a cover structure which requires no stitching or stapling to fabricate the same and which when associated with the box body is so arranged that the immediate upper portion of the exteriorly projecting portion of the partition anchorage arrangement is included within the cover rim and friction contact therebetween also serves to hold the cover in place on the box.

The chief feature of the invention consists in forming a chick box, or the like, whereby the foregoing objects are accomplished and which chick box in addition thereto accomplishes other features highly desirable and well known in the industry, and which will be pointed out more fully hereinafter.

It is to be noted that for clearness that customary ventilating knock-outs are not illustrated, it being understood that it is customary to semicircle cut the several walls and the cover top as well as the partitions, if desired, with circles approximately ½" in diameter and that the desired number of these may be readily removed from the supporting portion by merely applying finger pressure thereto, it being understood that in the wintertime for chick shipment a relatively smaller number of such openings are effected while in the summertime a correspondingly larger number of openings are effected, and that when more chicks are being shipped that a larger number of openings will be provided than when a smaller number are being shipped.

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 drawings and the following description and claims:

In the drawings:

Fig. 1 is a plan view of the box blank forming the main portion of the box structure, a portion being broken away.

Fig. 1A is a corresponding broken away portion and of a modified form of construction.

Fig. 2 is a developed plan view of a blank utilized for wall locking purposes, for corner blocking purposes, and for ventilation space providing purposes between chick boxes when in stacked relation.

Fig. 2A is a similar view of a modified form of such member and is utilized with the form of the invention shown in Fig. 1A.

Fig. 3 is a developed plan view of one of the intersecting partitions.

Fig. 4 is a similar view of the other of the intersecting partitions.

Fig. 5 is a developed plan view of the cover structure, the same being shown as adapted for top ventilation purposes when the box is utilized for stacking purposes.

Fig. 6 is a perspective view of the corner of the box structure with cover removed, looking down into the corner from the top and of the form of the invention shown in Figs. 1 and 2.

Fig. 7 is a top plan view of a corresponding corner of a box of the form of the invention shown in Fig. 6.

Fig. 8 is a perspective view of the corner of the box structure, with cover removed, looking down into the corner from the top and of the form of the invention shown in Figs. 1A and 2A.

Fig. 9 is a top plan view of a corresponding corner of a box of the form of the invention shown in Fig. 8.

Fig. 10 is a perspective view of a covered box adapted for ventilating type stacking purposes,
and of the form of the invention shown in Figs. 1 and 2. Fig. 11 is a perspective view of a portion of the box-partition interlock arrangement.

Fig. 12 is a vertical sectional view of the same. In Fig. 1 of the drawings there is illustrated in developed plan the blank for forming the box proper. The box sides a bottom 10, two side walls 11 hingedly connected thereto by the scorings 12, and two end walls 13 hingedly connected to the bottom by the scorings 14. Medianly of each wall, in the present instance, there is provided a slot 15 that extends therethrough and extending toward the bottom. A median slit 16 and extending laterally of the top of the slot is the slit 17 and extending parallel thereto and at the opposite end of the slit 16 and at the top thereof is the slit 18. This forms an H-shape slit and provides two wings 19, the purpose of which will be set forth more fully hereinafter with relation to partition mounting and anchorage. Each of the four walls is provided with similar combination slot and slit arrangements.

Herein the adjacent side edges of the adjacent side and end walls are connected together by an integral formation, generally indicated by the numeral 20, and this portion 20 is provided with a diagonal score 21 extending outwardly from the junction of the two creases 12 and 14. The extreme corner of this portion 20 is cut away as at 22 and the depth thereof slightly exceeds the depth of the notch 23 provided between the sides of the portion 20 at the connection thereof to the adjacent wall. Each side of this portion 20 other than where notched as at 23, is provided with a hinge score 24. The aforesaid provides a bellows type arrangement.

In the form of the invention shown in Fig. 1, there is provided an intermediate notch 25 extending parallel to the notch 23 and between that notch and the notch 22. All four corners of the box may be alike.

In Fig. 1A numerals of the 100 series indicate like or corresponding parts. In this form of the invention it will be noted that the corner notch 122 is of materially greater amount. Also, it will be noted that there is provided the notch or slot 123. It also will be noted that in this form of the invention the slot 25 is omitted. It is to be noted that each of the corners providing entrance to the slots 23, 25 and 123 may be rounded, if desired, although as shown, that portion of the slot which constitutes the side edge of the adjacent wall is preferably not rounded. The relieving or rounding is merely to facilitate the application of the locking member associated with a bellows fold connection.

In Fig. 2 the numeral 30 indicates two sides of the triangular locking member and the crease 31 constitutes the vertex thereof and in longitudinal alignment therewith is the slot 32. Members 33 are hingedly connected to adjacent members 30 by the creases 34 and the members 33 are slotted or notched as at 35. This construction is arranged in tubular formation and in triangular form as shown in Figs. 6 and 7, and the two portions 33 lap each other so that the slots 35 register with each other and when in triangular or tubular formation, the slot 32 is at the vertex and the registering slots 35 are positioned medianly in the base of said triangular locking structure.

When no partitions are to be utilized, the box is erected by erecting all four walls so that they stand perpendicular to the body portion 10. This forces inwardly the bellows fold construction at each of the four corners and when this occurs, it will be observed that the notches 23 are positioned in the immediate corner and the two notches 25 are in registration with each other remote from the corner and in the diagonal, inwardly directed bellows fold arrangement and remote from the end thereof as well as remote from the corner of the box. The blank shown in Fig. 2 then is arranged in triangular formation and applied in inverted relation thereto to this bellows fold arrangement, as shown in Figs. 6 and 7.

Thus, the sides 30 lie immediately adjacent and parallel to the adjacent walls 11 and 13 and the portion 20, immediately adjacent the creases 24, seats in the slot 32 and the portions of the member 20 in register slots 25 with the slots 25 and parallel to the creases 24 seat in the registering slots 35. The construction then is in locked relation, as shown more clearly in Figs. 1, 6 and 7, and the box thus is held in erected and box forming arrangements.

In Fig. 2A there is illustrated another form of triangular tubular locking and corner blocking member. Herein the numeral 133 indicates the base of the locking member. The portions 130 are connected to the portion 133 by the creases 134. The portions 130 are extended and indicated as at 130a and are connected thereto by the vertex registering creases 131. The portions 130 and 130a in registration with the creases 130 are slotted as at 132.

By referring to Fig. 8 and more particularly to Fig. 9, it will be observed that when the member shown in Fig. 2A is arranged in tubular formation, the two slots 132 register with each other and that when the same is applied to the bellows fold arrangement, shown in Fig. 1A when the box structure has its side walls erected as before described, the registering slots 132 accommodate the portion immediately contiguous to the creases 124 of the bellows fold 120, and then registering notches 133 accommodate the creased portions of the stock indicated by the numeral 131. With this form of the invention as shown clearly in Figs. 8 and 9, the bellows fold arrangement is completely concealed except at the top and no part of the bellows fold arrangement projects into the interior of the box.

In contradistinction thereto, it will be noted—see Figs. 6 and 7—that a portion of the bellows fold portion does project into the box in the form of the invention shown in Figs. 1, and 2, but it is also to be noted this projecting portion has an upwardly inclined lower edge which corresponds to the diagonal fold 21 and this is a smooth face. Therefore, no rough surface is presented so that the heads of the small chicks will not engage a rough surface.

Both forms of the invention described have this common characteristic, to wit, a triangular, tubular member serves to lock the box when erected in box forming formation and at the same time blocks the corners to prevent the chicks from huddling therein.

It also is to be understood that this type of construction presents a minimum of rough edge stock so that the chicks have little rough surface to work upon. Since this is not a material factor or huddling in the corners is not a material factor, particularly for boxes used in transportation in warmer climates, it is quite apparent that in place of the triangular and tubular locking arrangements, there may be provided a single angular locking arrangement wherein only the
tioned angular locking arrangement.

Walls are perpendicular to the adjacent wall. They may be utilized interchangeably with either box blank insofar as locking purposes are concerned.

Reference now will be had to Fig. 3 which is the simplest form of partition. Herein the numeral 40 indicates the body portion of the partition provided with a central slot 41, which is herein shown having been bent angularly to the partition proper in this operation, the partition may be dropped so that its lower end engages the base or bottom 42. The two partitions are substantially alike with the exception, although both may be alike for dimensions.

When the cover is adapted for partition lock and retention, the portion 140 on partition 139, when the cover is mounted on the box extends through slots 71, and the portions 152 and 153 as seen in Fig. 4—of the partition 151 may be folded angularly of the plane of portion 151 and along the line 155, all as shown in Fig. 10. The portions 153, therefore, serve as cover locks or retainers. If desired, partition 140 may be similarly provided with an upstanding arrangement similarly fashioned, as illustrated in Fig. 4, and in that event, there would be another slot provided at right angles to slot 71 and thus said second slot would receive the additional locking arrangement so that a multiplicity of cover locks may be provided.

As shown in Figs. 2 and 2A, as well as in Figs. 6, 8 and 10, the corner locking elements have an overall height greater than that of the box wall height so that they project an appreciable distance above the box, for example, approximately 1" or more. For cover seating purposes, therefore, the top 80 accordingly, is provided with triangular recesses 72 adjacent to the corners of the cover so that the upwardly extending triangular tubular portions may project there-through when the cover is mounted upon the box and the lower face of the top bears upon the upper edge of the box wall arrangement. These triangular, up-
wardly projecting portions exposed above the plane of the top—see Fig. 7—constitute spacers or spacing means for maintaining a superseded box in spaced relation to the box last mentioned so that ventilation in and through the cover to the interior of the uppermost box can be effected.

It also is to be noted that in the form of the invention shown in Fig. 6 and when the triangular tubular member extends through the cover that this triangular tubular member provides an air channel through the cover to the bottom of the box, the air escaping—see Fig. 6—into the box interior through the slots 35.

Whenever desired, the top edge of 30 and 130 in Figs. 6 and 7 may be relieved for ventilating when the box is stacked. Numerical 135 in Fig. 8 indicates an opening equivalent to slot 35 in Fig. 6.

It, of course, will be apparent that the locking members need not project above the plane of the upper edge of the box wall arrangement and in that event, the cover illustrated in Figs. 5 and 7 would not be provided with the triangular corner openings 72.

A further feature of the invention will be noted from an examination of Fig. 12. Therein it will be observed that the upper edge of the return bend portions 47-48 of the partitions is at an elevation above that of the lower edge 68 of the rim 67 so that the rim insofar as the multiple thicknesses embraced concern is constrained toward locked relation by said exteriorly projecting portions 47-48 of the partition.

From the foregoing it will be observed that the entire box structure may be fabricated and assembled into its constituent parts, associated together and locked together, if desired, and all without the employment of any stitching, tapping or stapling.

The invention claimed is:

1. A covered, stickless, stapleless chick box structure, including separable box and cover structures, the cover structure including a top forming portion, a rim portion integral with each edge of the top portion and arranged for transverse positioning for rim formation, flaps on the ends of two spaced rim portions and formable transversely thereof and toward the opposite rim portion, integrally foldable extensions on the other rim portions forming grooves therebetween for nestling the transverse flaps, the top at each corner including a triangular aperture, the box structure including a bottom and side and end walls integral therewith, each wall having an angular portion at each side edge, the walls when erected and transverse to each other and the bottom forming the box structure and having their adjacent angular portions substantially abutting and extending diagonally inward, and tubular triangular locking members in each corner of the box and with the vertex coincident with the box corner, the angular portions and the triangular tubular members being complementarily slotted for telescopic locking association to retain the walls in box structure formation, the tubular triangular members having a length greater than the height of any wall for projection above the plane of the cover when the cover is seated thereon, said triangular tubular members serving as a spacer for positioning a superseded box in spaced relation to the supporting box and retaining the several walls of the supporting box in box formation and the cover retaining the tubular portions in predetermined corner position for positively maintaining the walls and bottom in said box formation without requiring staple addition.

2. A chick box structure as defined by claim 1, characterized by the addition of partition means extending from one wall of the box to an opposite wall, the ends of said partition means including integral portions interlocking associated with the adjacent walls, the interlocking of each integral portion having pressure engagement upon the groove forming portion of the cover when seated upon the box structure for retention of the cover in cover formation.

3. A chick box structure as defined by claim 1, characterized by the addition of partition means extending from one wall of the box to an opposite wall, the ends of said partition means including integral portions interlocking associated with the adjacent walls, the interlocking of each integral portion having pressure engagement upon the groove forming portion of the cover when seated upon the box structure for retention of the cover in cover formation, and other partition means transverse to the first mentioned partition means and similarly associated at opposite ends with opposite walls of the box and including an upwardly directed projection, the cover including a slot for passage of said last mentioned projection when the cover is seated upon the box walls, said last mentioned projection having a portion positionable angularly of the main portion thereof for overlying the cover for locking means to the box.

4. In a chick box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly and lapping each other, and an angular section outlined, corner nestable locking member for each resulting box corner and having adjacent sides lying parallel to and lapping the adjacent corner forming walls and extending transverse to the bottom, each angularly arranged member and adjacent diagonal directed lapping angular portions having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner.

5. In a chick box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly, and an angular corner nestable locking member for each resulting box corner, each member and adjacent angular portion having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner, the angular locking member being substantially triangular in cross sectional outline, the vertex of the resulting triangular tubular formation being coincident with the box corner and the base of the triangular tubular formation extending across the corner to prevent the muddling in the corner and to brace the corner.

6. In a chick box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bot-
bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly, and an angular corner nestable locking member for each resulting box corner, each member and adjacent angular portion having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner, the angular locking member being substantially triangular in cross sectional outline, the vertex of the resulting triangular tubular formation being coincident with the box corner and the base of the triangular tubular formation extending transversely across the corner to prevent chicK huddling in the corner, the adjacent angular portion being integral with each other and projecting inwardly and inwardly into the box beyond the base of the triangular tubular formation.

9. In a chicK box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly, and an angular corner nestable locking member for each resulting box corner, each member and adjacent angular portion having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner, the angular locking member being substantially triangular in cross sectional outline, the vertex of the resulting triangular tubular formation being coincident with the box corner and the base of the triangular tubular formation extending transversely across the corner to prevent chicK huddling in the corner, each triangular tubular portion being of roll-up type and including at least four sequentially connected portions, at least two of which have lapping association.

10. In a chicK box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly, and an angular corner nestable locking member for each resulting box corner, each member and adjacent angular portion having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner, the angular locking member being substantially triangular in cross sectional outline, the vertex of the resulting triangular tubular formation being coincident with the box corner and the base of the triangular tubular formation extending transversely across the corner to prevent chicK huddling in the corner, each triangular tubular portion being of roll-up type and including at least five sequentially connected portions of which at least four are arranged in pairs and have lapping association.

11. In a chicK box and the like, the combination of a blank including a bottom and side and end walls, the walls being integral with the bottom, each wall having a locking angular portion at each side edge, the walls when transverse to each other and the bottom forming a box and having the angular portions extending diagonally inwardly, and an angular corner nestable locking member for each resulting box corner, each member and adjacent angular portion having complementary slots therein for interlocking association for locking the adjacent walls together in transverse relation and in box formation and reinforcing the box corner, the angular locking member being substantially triangular in cross sectional outline, the vertex of the resulting triangular tubular formation being coincident with the box corner and the base of the triangular tubular formation extending transversely across the corner to prevent chicK huddling in the corner, the base portion of the triangular tubular structure being apertured for box interior ventilation through the tubular formation.

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