Sept. 14, 1943. K. I. MILLER 2,329,637

CHICK BOX

Filed Oct. 21, 1940 3 Sheets-Sheet 1

Fig. 1.

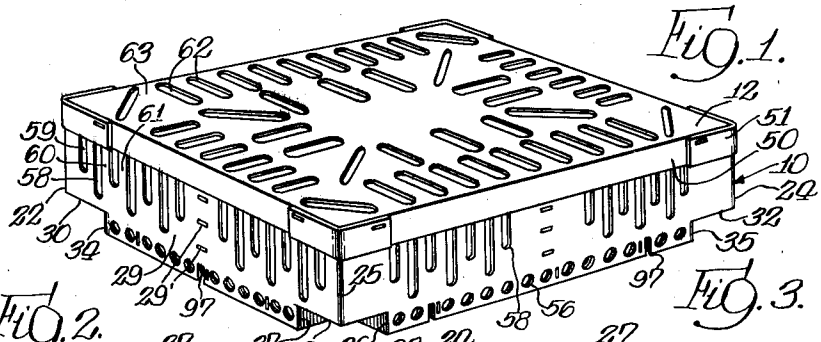


Fig. 3.

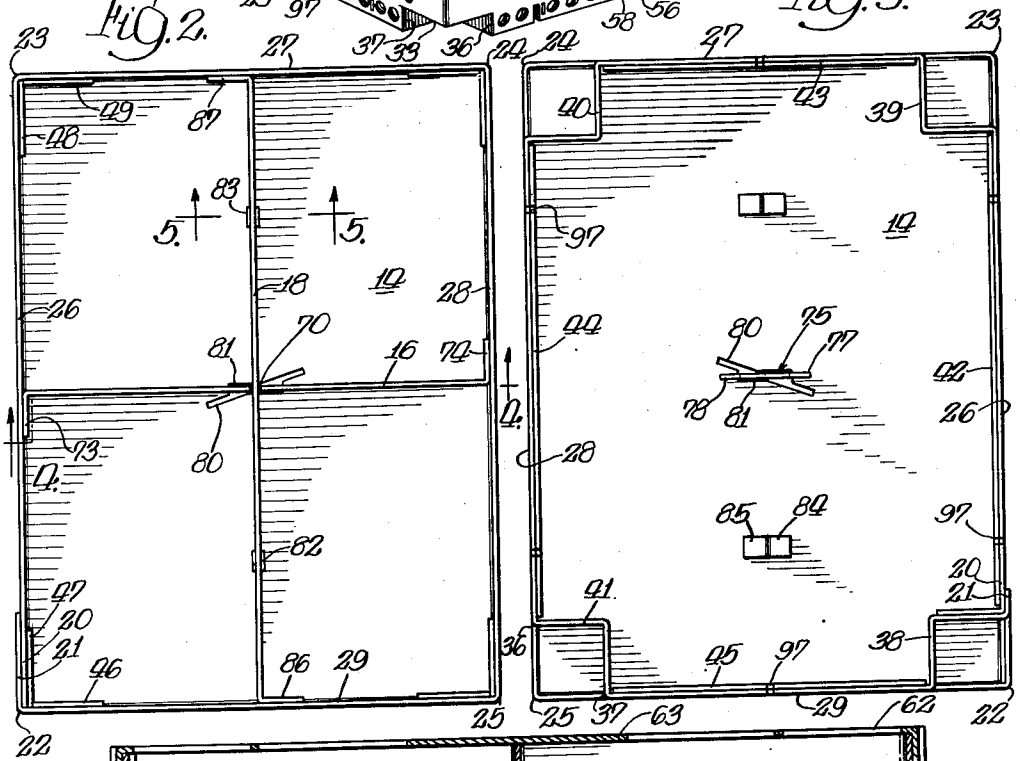


Fig. 2.

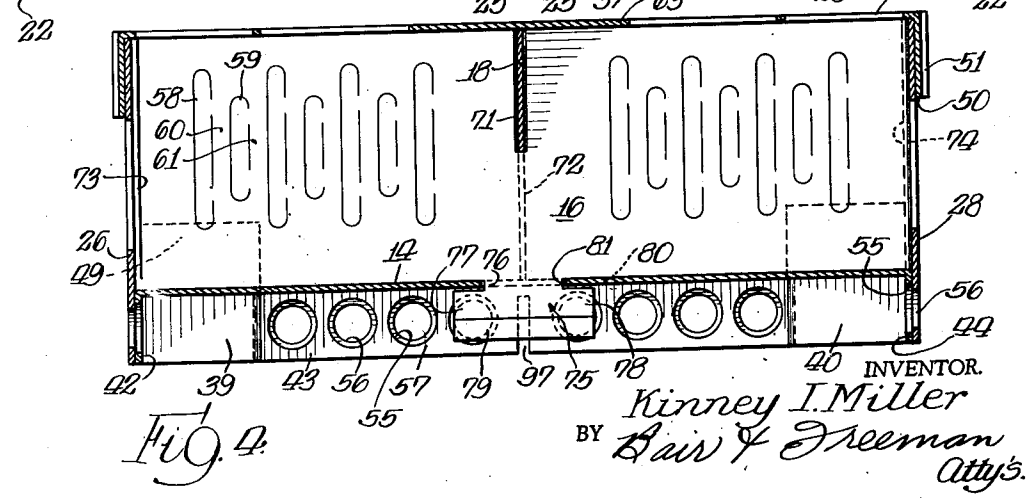


Fig. 4.

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Fig. 5.

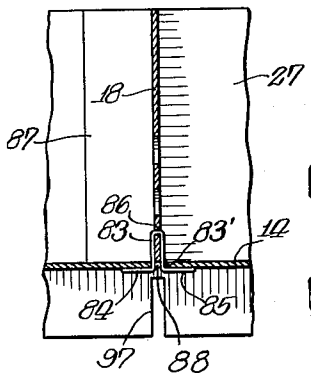


Fig. 6.

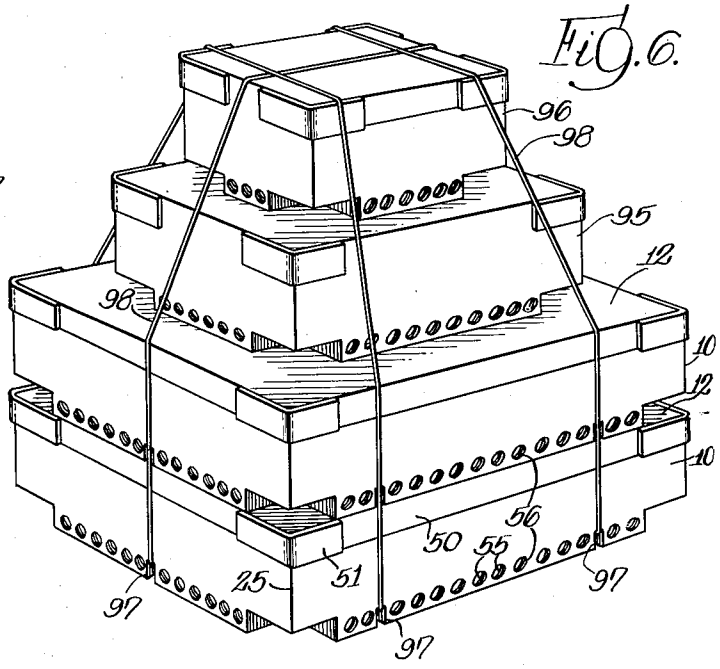


Fig. 7.

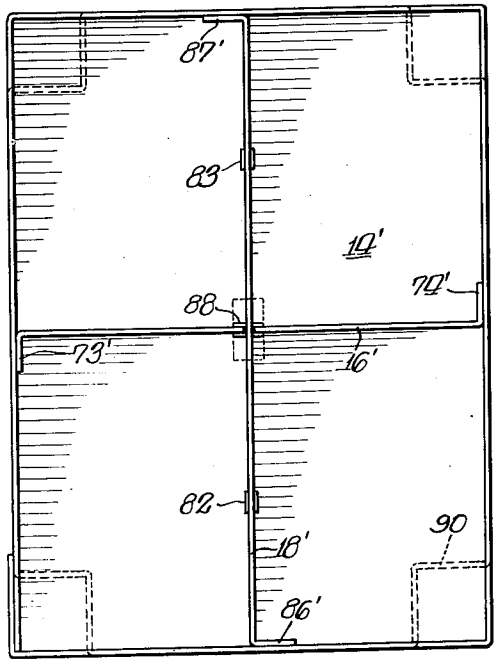
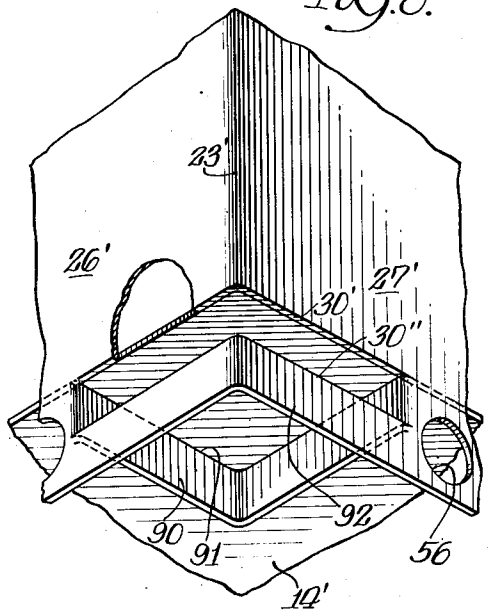


Fig. 8.



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Fig. 9.

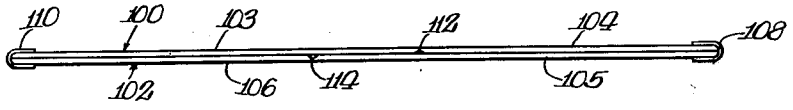


Fig. 10.

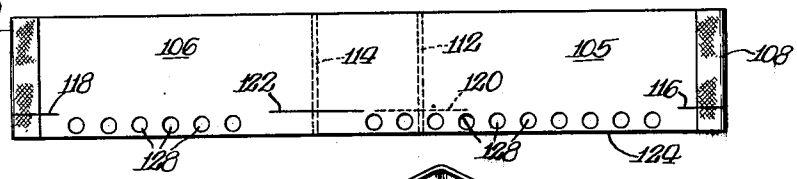


Fig. 11.

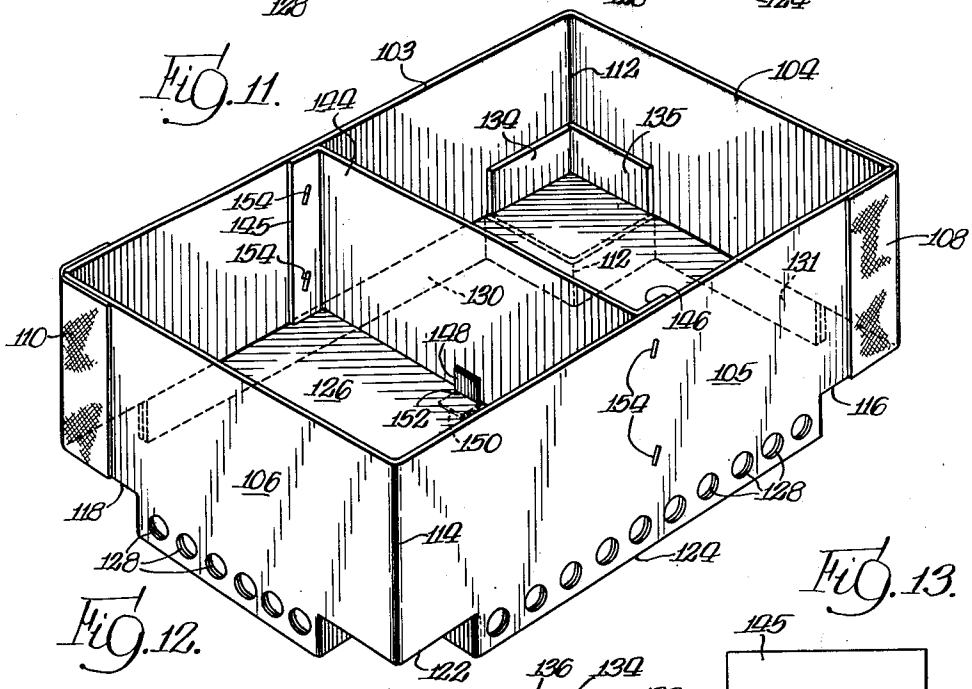


Fig. 12.

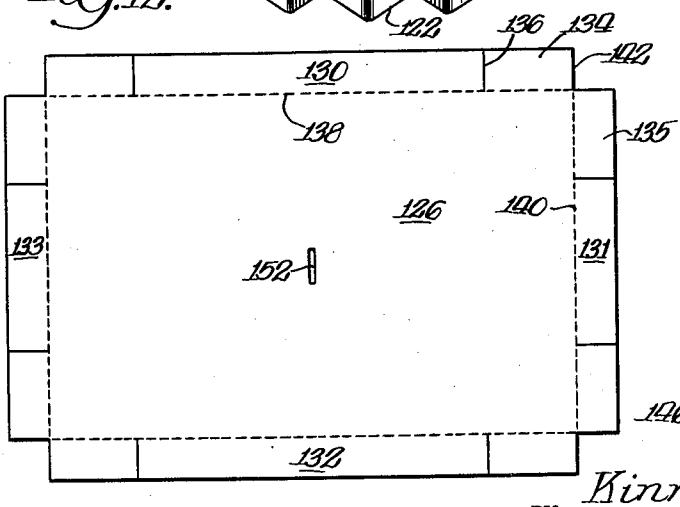
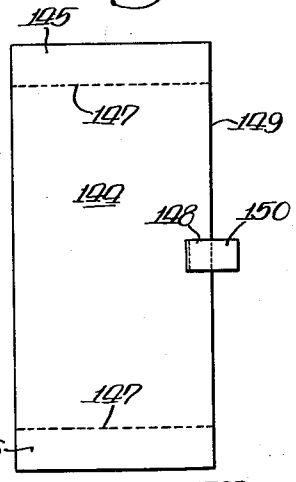


Fig. 13.



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Patented Sept. 14, 1943 2,329,637

UNITED STATES PATENT OFFICE

2,329,637

CHICK BOX

Kinney I. Miller, Lancaster, Mo.

Application October 21, 1940, Serial No. 362,102

6 Claims. (Cl. 229—6)

My invention relates to boxes and primarily to shipping boxes which are used for the transportation of baby chicks, baby turkeys and the like.

Among the objects of my invention is to provide a new and improved shipping box for chicks which is simple in construction, easy to assemble and relatively inexpensive to manufacture.

Another object of my invention is to provide a shipping box for chicks which has the bottom of the box elevated above the bottom edge of the side walls so as to provide an insulating ventilated space between any surface upon which the box may be supported and the inside box bottom on which the chicks are carried.

Still another object of my invention is to provide a new and improved shipping box for chicks constructed of essentially no more than two separate pieces of sheet material initially in a flat or knock-down position and which, when erected, form a shipping box for chicks wherein the box bottom is supported above the lower edge of the sides thereby permitting the box to be rested upon any sort of supporting surface whether in cold or hot weather, and further permitting the application of a ventilating lid so that one box can be piled upon another in a manner maintaining a ventilating space between successive boxes for the purpose of keeping the inside of individual boxes warm in winter and cool in summer.

Still another object of my invention is to provide a new and improved shipping box for chicks wherein the side walls are made of a strip of sheet material with the ends bound together and folded into the form of a box wherein slits at the corners are provided permitting portions of the corners to be projected inwardly in order to provide a shelf for supporting the box bottom above the lower edges of the side walls and at the same time providing a supporting leg spaced inwardly from the outside corner of the container particularly so that one box whether of the same or a smaller size can be piled upon the top of the other without danger of slipping off. Included also in the object is the provision of a ventilated space separating the bottom of the upper box from top of the lower box and slots at the lower edges of the side walls of each box permitting ties to be wrapped around a stack of boxes and drawn directly against the bottom of the lowermost box in order that the supporting edges may not be forced inward which would, in such an event, permit the tie to become loosened.

A further object of my invention is to provide a new and improved shipping box for chicks which has the bottom elevated above the lower edge of the side walls and in which is provided one or more partition walls for subdividing the space within the box, these partition walls being secured to the side walls of the box and the bottom of the box so as to eliminate any sag in the bottom below the lower edge of the walls which would otherwise permit baby chicks, for example, to have their feet get caught beneath the edges of the walls.

A further object still is to provide a particular interlocking arrangement whereby the partition wall and the box bottom are secured together by a quick and easy assembly operation.

Also among the objects is to provide punch-out ventilating apertures in the side walls of the chick box which are elongated in a vertical direction and separated by imperforate strips of the material forming the side walls which act as supporting columns to give added rigidity to the sides of the boxes in order that a great number of boxes of similar design can be piled one upon the other without fear of crushing the bottom box.

Still another object is to provide a box bottom with turned down edges extending from the bottom downward to the bottom edge of the side walls, thereby reenforcing the side walls at a point below the level of the bottom, supporting the bottom above the lower edge, and having provided in the downwardly turned edges and the lower portions of the side walls coinciding punch-out discs, to provide ventilation in a space beneath the box bottom, it being also contemplated as among the objects to provide a closure adapted to substantially close any cracks which might be produced by turning the lower corners of the box inwardly.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of my chick box provided with a lid;

Figure 2 is a top plan view of the chick box drawn to a larger scale;

Figure 3 is a bottom view of the chick box;

Figure 4 is a cross sectional view of the chick box taken on the line 4—4 of Figure 2;

Figure 5 is a fragmentary cross sectional view of the chick box taken on the line 5—5 of Figure 2;

Figure 6 is a stack of chick boxes of different sizes piled one upon the other, tied together;

Figure 7 is a top view of a modified form of the chick box with the lid removed; and

Figure 8 is a bottom perspective view partially in section showing a modified type of corner;

Figure 9 is an edge view of a modified side wall construction in knock-down shipping form;

Figure 10 is a side view of the modified form shown in Figure 9 in knock down form;

Figure 11 is a perspective view of the modified type of box shown in size suitable for fifty chicks;

Figure 12 is a plan view of the box bottom before folding; and

Figure 13 is a side view of the partition wall of Figure 11 before folding.

In providing boxes or cartons for shipping baby chicks, baby turkeys and the like, the shipper is constantly faced with the problem of keeping all of the chicks alive regardless of the weather and when confronted with such a problem he must bear in mind that it is highly desirable to stock only one type of box, but such a box as will be capable of transporting the chicks comfortably and with a minimum of casualties whether in the bitter cold weather of winter or in the hot and humid weather of summertime.

The problem of shipping baby chicks is further complicated by the fact that the chicks themselves generate considerable animal heat and this must be dissipated, especially in warm weather, sufficiently so that the chicks will not suffocate themselves. In winter it is necessary to provide a chick box wherein the bottom is so constructed that it will not be inadvertently placed directly upon a cold slab of concrete, for example, thereby permitting the bottom of the box to become extremely cold and chill the chicks to such an extent that many of them may die. It is the applicant's purpose in the present invention to provide a box wherein the box bottom is always elevated above the bottom edge of the box so that it cannot be set directly upon a surface which might be too cold or too wet and also one which when boxes are placed one upon the other will provide ventilation expressly for each and every box so that the animal heat from the chicks within one box may not be transferred to the chicks of another box and cause suffocation.

Still another problem confronts the shipper and that is to provide a box in which large quantities of chicks can be shipped. It is customary to make such boxes of such a size as will accommodate quantities of 25, 50 or 100 chicks at a time. The 100-chick boxes are separated into four compartments, each designed to hold 25 chicks; the 50-chick carton separated into two compartments for holding each 25 chicks; and the 25-chick boxes comprising a single compartment.

In the larger boxes which are provided with partition walls it is highly desirable to secure the box bottom to the lower edge of the partition wall so that the feet or toes of baby chicks will not become wedged under the edges of the partitions as the boxes are banged around in shipment, causing the chicks in their frantic efforts to free themselves to be injured and thereby curtail the value of the shipment.

To provide a box which is equally useful both in winter and summer it must be necessary to vary the amount of ventilation for the box so that it may be relatively closed in the winter time but completely porous in the summer without it being necessary to change the construction of the box or to keep more than a single style of box in stock. These boxes are manufactured in great quantities and such types of designs as will cheapen the cost, even if by only a relatively insignificant figure, will render the design of considerable value especially to large commercial hatcheries which use them to ship great quantities of baby chicks.

In providing an inexpensive and effective container my invention consists of a box 10 having a lid 12 and a box bottom 14. Inside the largest size box of my design there are provided partition walls 16 and 18 interlocking at right angles and separating the interior of the box into four compartments of equal size.

The box body 10 may be constructed of a single elongated strip of corrugated paper, cardboard or some similar sheet material, the ends 20 and 21 of which are stapled together. The body when first made is creased at intervals forming outside corners 22, 23, 24 and 25, which in turn define intermediate side walls 26, 27, 28 and 29. The side walls, moreover, have slits 30, 31, 32 and 33 transverse to the creases forming the outside corners and are additionally creased in a direction transverse to the slits at the points 34, 35, 36 and 37, for example.

The box is designed to be shipped in a flattened condition with adjacent side walls in face to face contact. When the box is erected the side walls are separated into the form of a rectangle and the portions 38, 39, 40 and 41 of the side walls on the lower side of the slits 30, 31, 32 and 33 respectively are pushed inwardly as best shown in Figures 1 and 3 so that they form an open space below each outside corner and provide not only a supporting leg at a point inwardly from the outside corner but also provide a shelf upon which the box bottom 14 may be supported.

The box bottom itself may be constructed of a single rectangular sheet of material of the same sort used to make up the side walls. Mid portions 42, 43, 44 and 45 at the edges are bent downwardly at substantially a right angle so that when the bottom is in place, the mid portions lie against the lower portions of the side walls and extend to a point coincident with the bottom edges of those side walls, thereby providing in effect a reenforcement for the bottom edges of the side walls and an additional support for the box bottom above the lower edges. At the corners there are provided turned up portions 46, 47, 48, 49, etc., which extend along the side from the corner a distance substantially equal to the length of one side of the slits 31, 32 and 33 and serve the purpose of closing the crack which would otherwise exist between the edge of the bottom and the slit, when the box is erected.

It will be apparent that the side walls comprise a single piece and the box bottom a separate single piece which, when placed one within the other, make up the entire body of the box.

The lid 12 is provided with turned down edges 50 with a double reenforcing piece 51 at the corners, for example, and is placed upon the top of the box.

It will be noted further that the turned down mid portions of the box bottom are provided with apertures 55 and that coinciding with these apertures are similar apertures 56 in the lower portion of the side walls, but that the apertures 55 are larger in diameter than the apertures 56.

With this relationship, should the respective apertures not exactly coincide, the passage through them will always be at least as large as

the outside aperture 56 and the box will maintain a neatness of appearance which would be interfered with should the edges of the inside aperture 55 overlap a part of the apertures 56.

Normally the apertures are punched only partway through so that when the box is erected the shipper may punch out as many apertures as he chooses and thereby control the amount of ventilation which is available to a space 57 beneath the box bottom.

Similarly the partition walls and the side walls are provided with sets of elongated punch-out portions 58 and 59 which extend in a vertical direction and are separated by imperforate vertical columns 60, 61, etc., which act as supporting columns for the walls even though there may be a large number of punched out perforations in them.

Likewise, the lid is provided with similar punch-out apertures 62 positioned variously over its surface but wherein relatively solid corner portions 63 remain to give support to the lid when one box is piled upon another.

The partition walls 16 and 18 interlock at a center point 70 as a result of there being a downwardly directed slot 71 in the partition wall 16 and an upwardly directed slot 72 in the partition wall 18. The partition wall 16 has flaps 73 and 74 at the ends secured to the side walls 26 and 28 respectively by staples 29'. At the bottom in the center of the partition wall 16 there is provided a tongue 75 made of the same material and an integral part of the partition wall extending below the lower edge.

The tongue has a neck 76 of substantial length and wings 77 and 78 spaced from the bottom edge of the partition wall a distance substantially equal to the thickness of the box bottom 14. A metal sheathing 79 may be provided for reenforcing purposes at the lower side of the tongue.

The box bottom is provided in turn with an elongated slot 80 having a thickness about equal to the thickness of the tongue and a length equal to the over-all length of the tongue where the wings are located. The axis of the slot 80 is at a slight angle relative to the direction of the partition wall 16.

A second slot 81 is likewise provided lying in a direction coincident with the direction of the partition wall 16 when in erected position. This second slot has a length substantially equal to the length of the tongue 76 and is connected to the first slot 80.

When the partition is erected in the box, the tongue 75 and wings 77 and 78 are inserted into the slot 80. Thereafter the partition wall is turned a slight angular distance, clockwise as viewed in Figure 2, and the wings 77 and 78 thereupon become locked beneath the material forming the box bottom beyond the ends of the slot 81 and securely anchor and attach the box bottom to the lower edge of the partition.

In addition, there may be provided other anchoring devices 82 and 83. These may consist of metal strips inserted in a transverse slit 86 in the partition wall, as best seen in Figure 5, and extending downwardly below the lower edge of the wall. The strips likewise protrude through slits 88 in the box bottom and are bent over, providing flanges 84 and 85, for example, which engage the bottom side of the box bottom and secure it to the lower edge of the partition wall 18.

Flaps 87 and 86 are fastened to the side walls 27 and 29, respectively. In this manner therefore the box bottom 14 is held in place by first being rested directly on the shelves formed by the turned in corners and then being held upon those shelves by the lower edges of the partition walls which in turn are stapled or otherwise fastened to the side walls.

Since these partition walls are thus fastened the entire box may be lifted by grasping the partition walls at their intersection with one hand, thereby balancing it as it is moved from place to place.

An anchoring device of the type shown by characters 82 and 83, as indicated in Figure 7, may be used at the center, as indicated by the character 88 of Figure 7, in place of the interlocking tongue and slot described in connection with Figures 2, 3 and 4.

In Figures 7 and 8 there is shown a modified type of construction directed to a slight variation in the construction of the inwardly extending corners. In this modified form, side walls 26' and 27', for example, intersect at an outside corner 23'. At the corner there is provided a transverse slit 30' and a second transverse slit 30'' parallel to and separated from the slit 30'. When the side walls are erected in the form of a box, an intermediate portion 90 is extended inwardly, forming at the top edge 91 thereof a shelf for supporting the box bottom 14'. When the corner is constructed in this manner, there remains an outer portion 92 extending clear around the lower end of the outside corner 23'.

A chick box is shown in Figure 7 provided with the corners described in connection with Figure 8. This box has partition walls 16' and 18' interlocking at the center in a manner similar to that described in connection with Figures 2 and 3, and secured to the side walls by flaps 73', 74', 86' and 87' respectively. In this modified form, as previously described, the partition wall 16' is secured to a box bottom 14' by means of the anchoring device shown in Figure 5. In the modified form, moreover, the box bottom 14' may be a single flat and relatively rigid sheet fitting snugly along the sides and at the corners, as shown in Figure 8.

When quantities of boxes of the type described are to be shipped together, they may be stacked in the manner shown in Figure 6. Either boxes of the same size, as for example the boxes 10, may be tied together separately, or to them may be tied boxes 95 and 96 of successively smaller dimensions. It should be noted that at the lower edge of the side walls of the boxes, and particularly the boxes 10, there are provided slots 97 which extend from the lower edge of the side wall inwardly a distance approximately equal to the height of the space between the box bottom and the lower edge of the wall. Ties 98 are passed around all of the boxes and on the bottommost box they are passed through the slots 97. By securing the boxes together in this manner, the ties bear directly against the bottom of the lowermost box, prevent it from sagging due to any weight imposed upon it, and likewise eliminate pressure of a tie upon the downwardly extending edge of the side walls which might otherwise cause the side wall to bend over, thereby loosening the tie and permitting the lower box to crush the side wall to such an extent that the box bottom would rest upon the surface supporting the stack.

By the use of boxes constructed in accordance with my invention, each and every box is supported at the bottom, so that the inner box bottom is above the lower edge of the side walls.

Moreover, the space between the box bottom and the lower edge is amply ventilated by punch-out apertures. Inwardly bent corners provide added support over a wide area at the corners. Therefore, when one box is piled upon another of the same size, even though one edge might be pushed to a position overlapping the edge of a box directly beneath it, a portion of the inwardly bent corner would still support the upper box in its proper position. When boxes of different sizes are piled up with a smaller one on top of a larger one, there is no sacrifice of a ventilated air space between the boxes. Apertures in the lid of the lower box permit air to circulate out of the lower box and the apertures at the lower portions of the side walls of the upper box permit this same air to circulate outward without passing through the upper box. It will be apparent, therefore, that any number of boxes, whether of the same size or different sizes, may be stacked one upon the other and tied together tightly for shipping.

A slightly modified type of construction is shown in Figures 9, 10 and 11, which enables the box to be collapsed more easily to a flat position for shipment but which is so constructed at the corners that they are not weakened by excessive folding.

As shown, the side walls consist of two elongated pieces 100 and 102, which together form the four side walls 103, 104, 105, 106, of the box. As shown in Figure 9, the elongated pieces are positioned face to face and the adjacent ends of each may be fastened together as, for example, by strips of tape 108 and 110. The elongated strips are creased as previously described at the points 112 and 114, respectively, so as to define the other corners when the box is erected. These pieces also, as previously described, have slits 116 and 118, respectively, cutting the corners formed where the strips of tape 108 and 110, respectively, secure the ends of the pieces together and slits 120 and 122, respectively, which extend transversely to the creases 112 and 114. All of the slits as indicated are in alignment and equidistant from a bottom edge 124 of the elongated strips.

The side walls when in erected form take the position shown in Figure 11 substantially as previously described with the portions of the side walls between the slits and the nearest adjacent edges extended inwardly from the corner in order to provide shelves for a box bottom 126. The usual ventilating apertures 128 are provided at the bottoms of the side walls.

The box bottom 126 is likewise provided in the flat or knock-down position with mid-portions 130, 131, 132, 133, of the side edges separated from end portions 134 and 135 adjacent thereto by slits 136. On the sides and ends of the box bottom creases 138 and 140 are provided in order to define a line of bending for the mid-portions and end portions. Corners 142 are cut out in each case. When erected, the mid-portions 130, 131, 132 and 133 are bent downwardly so that the bottom edges thereof coincide with the bottom edges of the side walls. Contrarily, the end portions 134 and 135 are bent upwardly as shown in Figure 11 so that they reenforce the corner above the bottom of the box and as indicated previously, close any possible crack or gap between the box bottom and the slit portion of the side walls at the corners.

A partition wall 144 is similarly shipped in a knock-down position with flaps 145 and 146 at opposite ends creased as at 147 at the junction with the central part of the partition in order to define a bending line. A slit 148 is also provided near the bottom edge 149 and parallel thereto and in the slit is inserted a flexible strip 150 usually of metal and bent somewhat in the form of a U with the sides parallel and extending beyond the bottom edge 149.

After the side walls and bottom have been erected as shown in Figure 11 flaps of the partition wall are bent to the position shown in Figure 11 and the partition wall inserted in place. During this erection process the ends of the strip 150 are inserted into a corresponding slit 152 in the box bottom and there bent outwardly to lock the box bottom to the bottom edge 149 of the partition. The flaps 145 are thereupon secured to the side walls by some approved means as, for example, the staples 154.

When a box consisting of side walls of the type just described is provided, corners adjacent the strips of tape 108 and 110 are never weakened by excessive bending since the strips of tape are of a flexible character and take up all of the bending moment. In erected position the strips hold the ends of the side walls firmly in place and in addition may serve also as a reenforcement. Similarly, since the strips of tape are slit at 116 and 118 they may be bent inwardly and at the inward position also firmly hold the corner together and provide a measure of reenforcement.

There has thus been disclosed a sanitary chick box construction made of a relatively minimum number of parts which can be quickly assembled and which remains tight, secure, and well ventilated under any and all varying conditions of temperature to which it may be adapted.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope without sacrificing any of the advantages thereof.

I claim as my invention:

1. In a chick box having side walls, shelves on the lower portion of said walls and a bottom supported by said shelves in a position above the bottom edges of said walls, the combination of a partition subdividing the interior of said box, said partition comprising a sheet of material secured to opposite side walls and a tongue at the bottom of the partition substantially midway between the ends, said tongue having a neck and a wing element extending outwardly from the neck having the upper edge thereof spaced from the partition a distance substantially equal to the thickness of the bottom, said bottom having at the center thereof an aperture having an area at the center substantially equal to the cross section area of the tongue so that the wing elements thereof overlap the end when in place, and a second slot intersecting the aperture at the center at an angle relative to the position of the partition having a width substantially equal to the breadth of the tongue and a length substantially equal to the over-all length of the tongue and wing combined adapted to receive the wing when inserted and permit rotation thereof through a relatively small angle to a locked position securing the box bottom to the lower edges of the partition.

2. A chick box having side walls provided with horizontal slits at the corners and having corner

portions between said slits and the bottom edges of the side walls extending inwardly and forming supports, a bottom for the box resting on said supports having downturned flanges extending between the successive supports and to the lower edges of the side walls, which flanges serve to reinforce the side walls below the bottom and serve, at their ends, to brace the supports.

3. A chick box having side walls provided with horizontal slits at the corners and having corner portions between said slits and the bottom edges of the side walls extending inwardly and forming supports, a bottom for the box resting on said supports, having downturned flanges extending between the successive supports and to the lower edges of the side walls, said bottom having flanges at each corner extending upwardly along the sides for reinforcing the side walls at the corners and closing the cracks above the supports.

4. A chick box having side walls provided with horizontal slits at the corners and having corner portions between said slits and the bottom edges of the side walls extending inwardly and forming supports, a bottom for the box resting on said supports, having downturned flanges extending between the successive supports and to the lower edges of the side walls, the side walls below the bottom and the downturned flanges of the bottom having registering ventilation vents.

5. A chick box having side walls provided with horizontal slits at the corners and having corner portions between said slits and the bottom edges of the side walls extending inwardly and forming supports, a bottom for the box resting on said supports, having downturned flanges extending between the successive supports and to the lower edges of the side walls, which flanges serve to reinforce the side walls below the bottom, said side walls and downturned flanges having registering slots in their lower edges to receive tie strings.

6. A chick box having side walls provided with horizontal slits at the corners and having corner portions between said slits and the bottom edges of the side walls extending inwardly and forming supports, a bottom for the box resting on said supports, having downturned flanges extending between the successive supports and to the lower edges of the side walls, the side walls below the bottom and the downturned flanges of the bottom having registering ventilation vents, said box having in its side walls above its bottom, vertically elongated vent holes.

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