Oct. 25, 1955 J. F. GROSS 2,721,687

SHIPPING BOX

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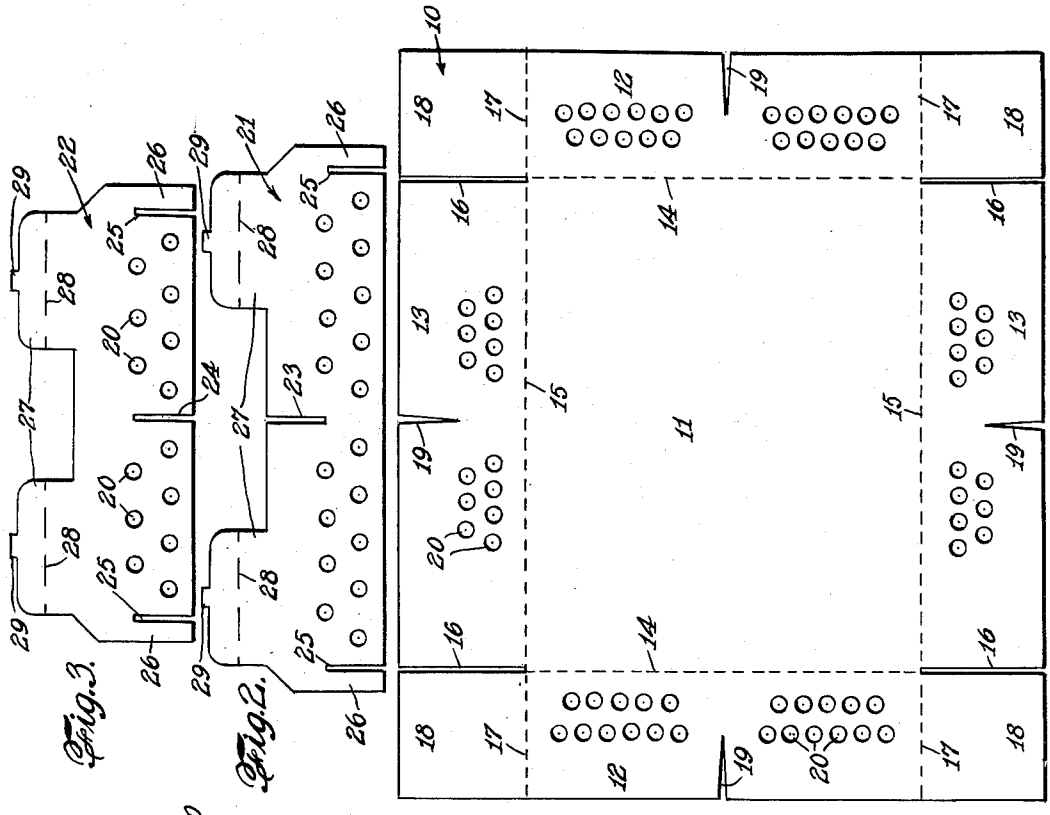


Fig. 3.

Fig. 2.

Fig. 1.

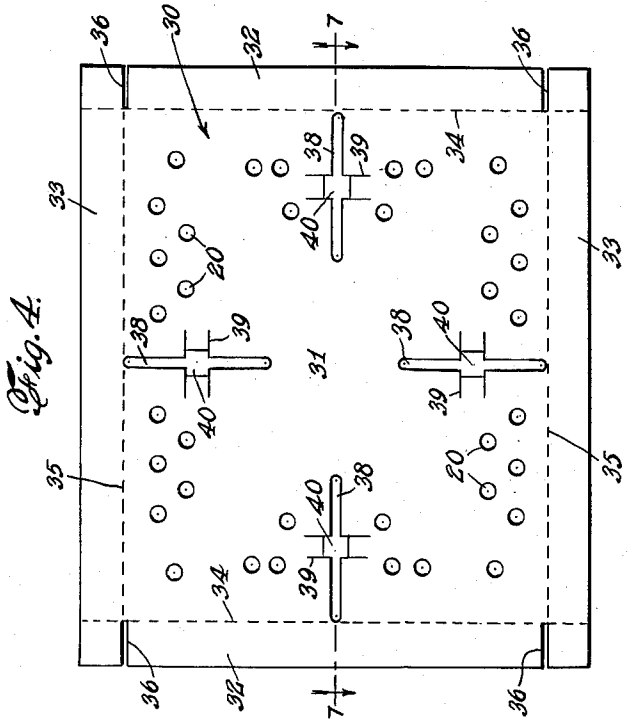


Fig. 4.

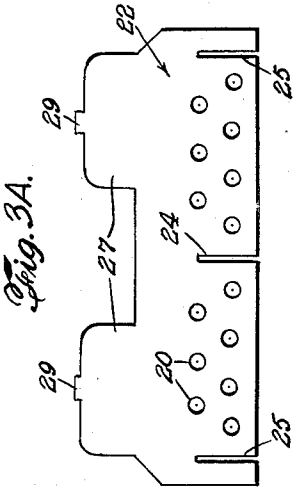


Fig. 3A.

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Fig. 5.

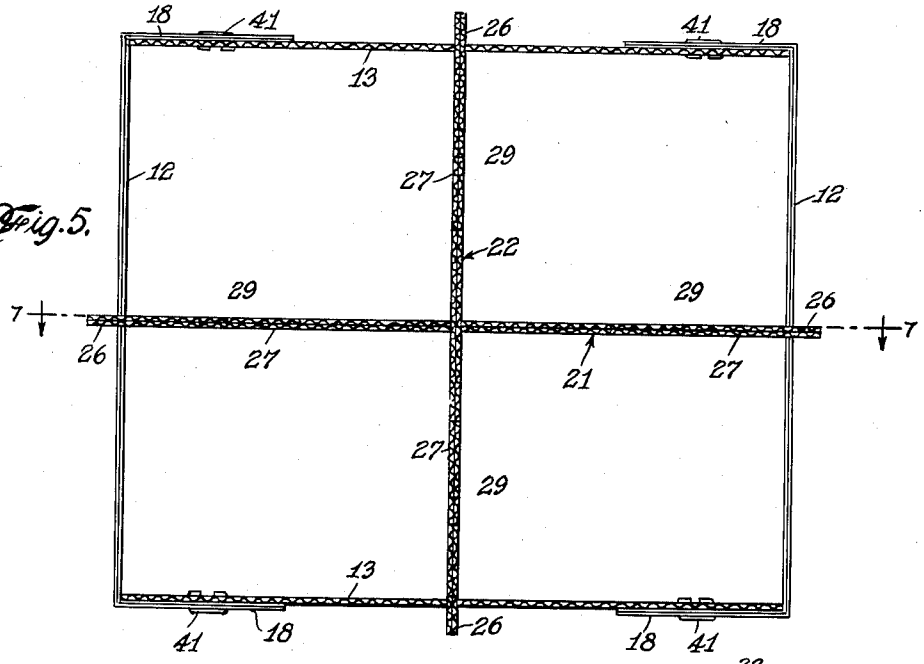
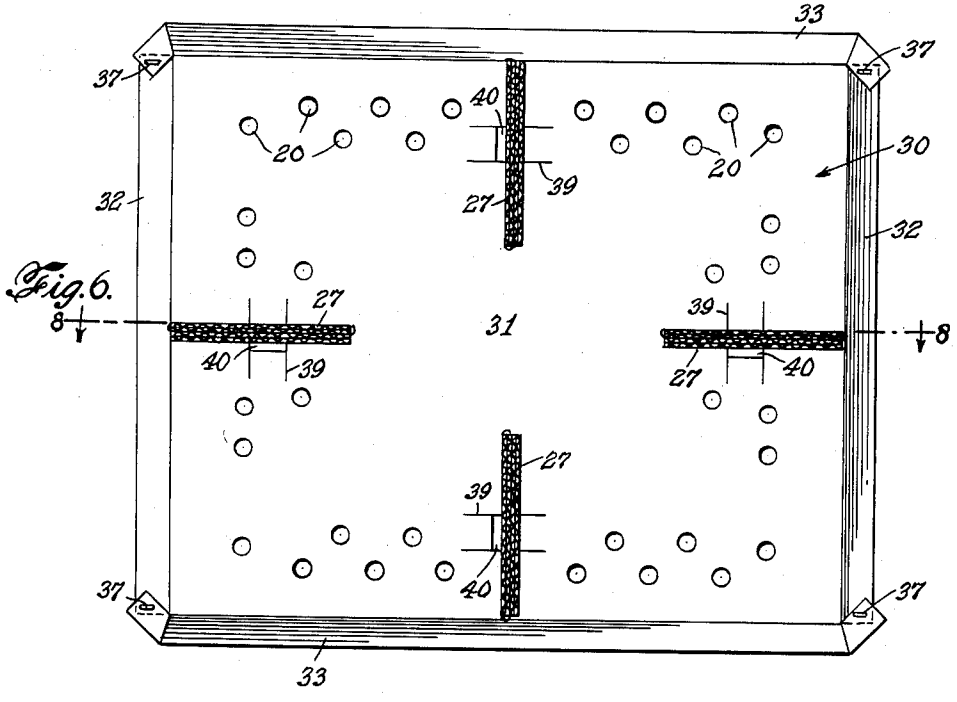


Fig. 6.



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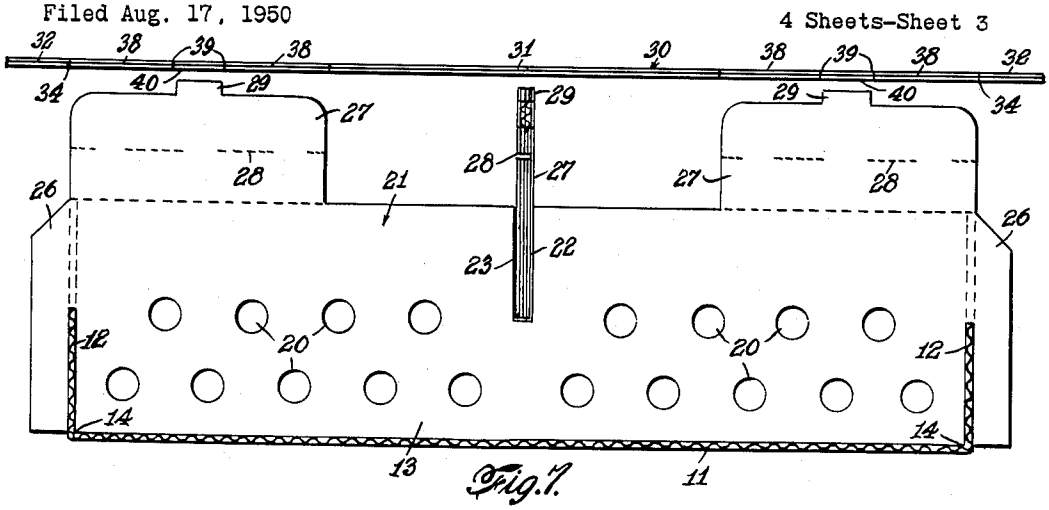


Fig. 7.

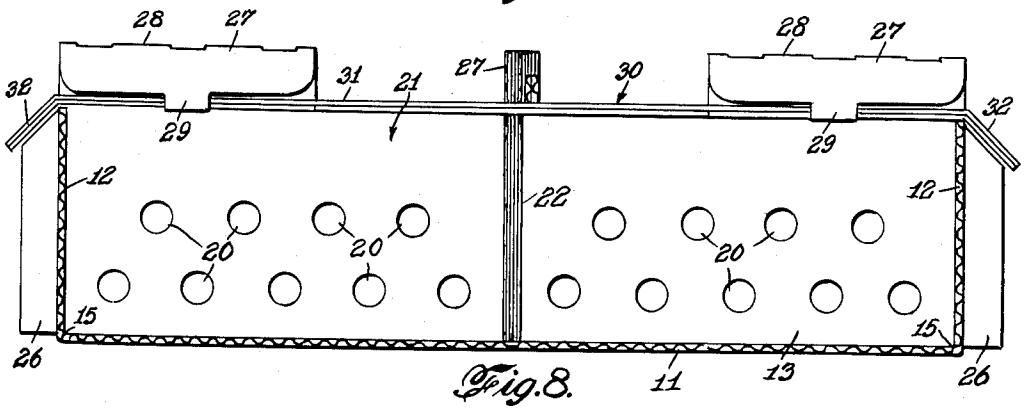


Fig. 8.

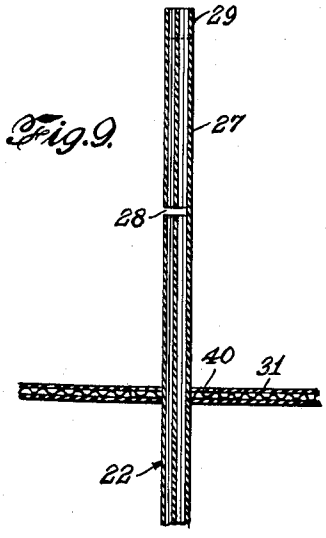


Fig. 9.

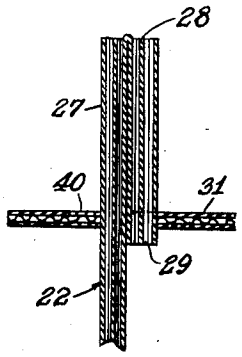


Fig. 10.

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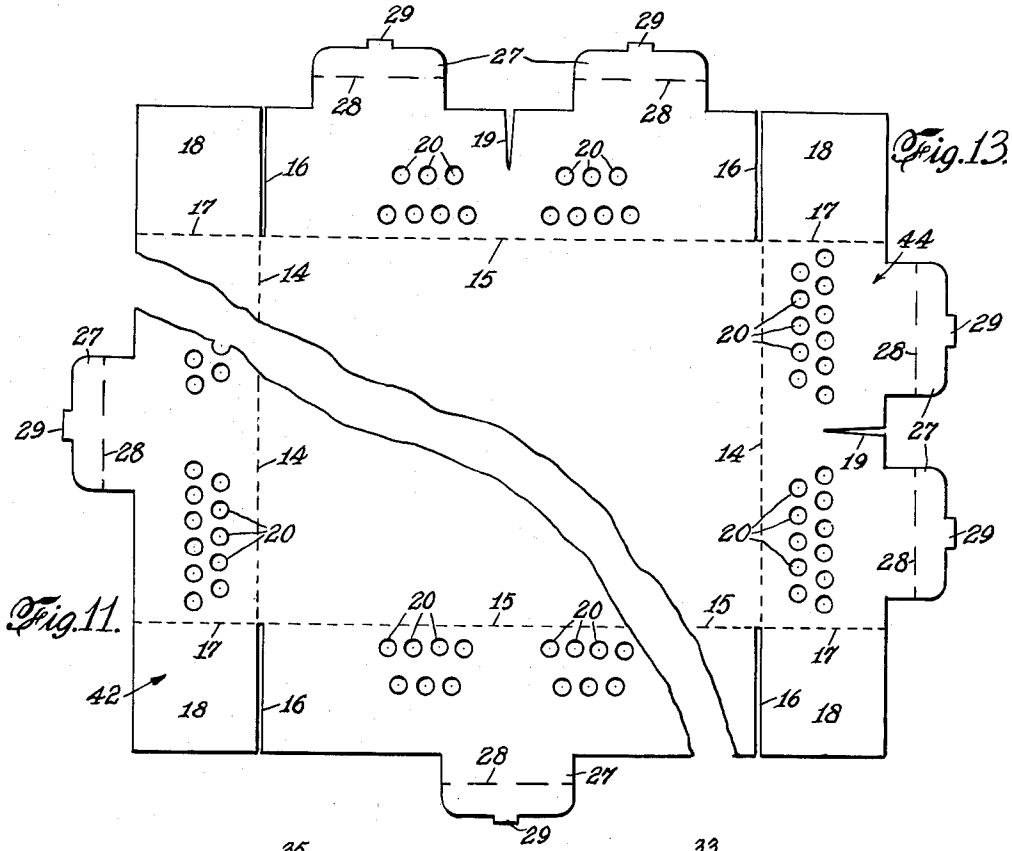


Fig. 13.

Fig. 11.

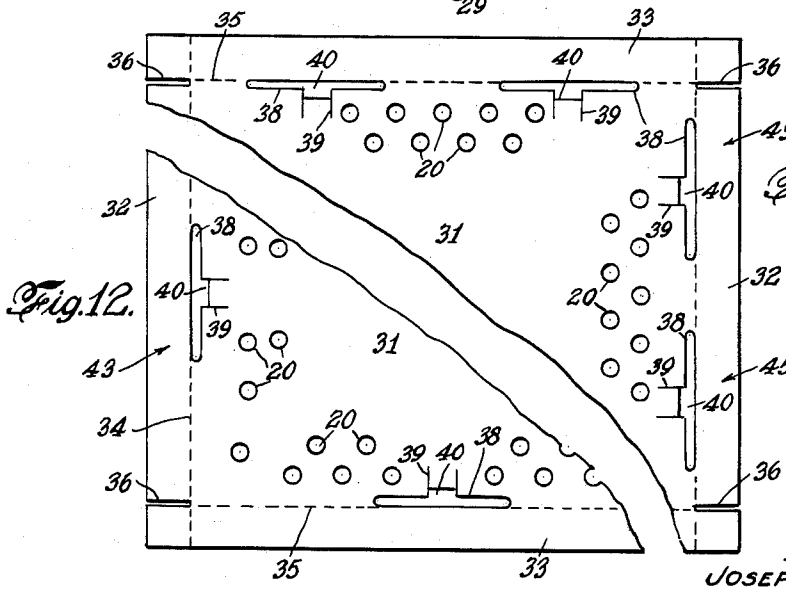


Fig. 14.

Fig. 12.

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United States Patent Office 2,721,687 Patented Oct. 25, 1955

2,721,687

SHIPPING BOX

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Application August 17, 1950, Serial No. 179,956

4 Claims. (Cl. 229—6)

The present invention relates to improvements in shipping boxes. More particularly it pertains to a new and improved box for shipping live chicks, which may be made of corrugated board or other fibrous folding board.

An object of this invention is to provide a box which can be shipped and stored in unassembled form in a flat condition, and is so cut and scored that it may be readily set up into a chick box without the use of special tools or skilled help.

Another object of this invention is to provide a box in which the partitions are secured to the box sides merely by a friction fit, but nevertheless held sufficiently so that the box loaded with chicks can be picked up and carried by the partition without risk that the box proper will become detached.

Another object of this invention is to provide a box having simple locking means so that the cover can be easily secured to the box and locked in place.

Another object of this invention is to provide a box having portions protruding from the sides and top of the box so that boxes may be stacked next to and upon one another without affecting proper ventilation for the chicks from all sides and the top of the box.

Another object is to provide a shipping box of the character stated which is simple in design, rugged in construction, economical to manufacture, and more satisfactory and efficient than the chick boxes now in use.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller undertanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a plan view of the blank from which the main body of the box is formed;

Figure 2 is a plan view of one of the interior partitions;

Figure 3 is a plan view of the other of the interior partitions;

Figure 3A is a similar view of the opposite side of the partition of Figure 3;

Figure 4 is a plan view of the blank from which the cover of the box is formed;

Figure 5 is a top plan view of the box without the cover in position;

Figure 6 is a similar top plan view of the box with the cover in position and the tabs locked;

Figure 7 is a vertical section taken substantially along lines 7—7 of Figure 4 and Figure 5, with the cover ready to be placed on the box;

Figure 8 is a vertical section taken substantially along lines 8—8 of Figure 6;

Figure 9 is a sectional view on an enlarged scale showing one of the locking tabs on the partition and a portion of the cover;

Figure 10 is a similar sectional view showing the tab locked into position in the cover;

Figure 11 is a plan view of a portion of the blank from which the main body of a modified box is formed;

Figure 12 is a plan view of a portion of the blank from which the cover for the modified box of Figure 11 is formed;

Figure 13 is a plan view of a portion of the blank from which the main body of another modified box is formed;

Figure 14 is a plan view of a portion of the blank from which the cover for the modified box of Figure 13 is formed.

Referring more particularly to the drawings there is shown in Figure 1 a blank **10** from which the main body of the box is formed. This blank is scored and cut out along certain lines to facilitate folding and assembling the box. As in the case of the entire box, it may be formed of corrugated board or other fibrous folding board adapted for use in boxes or cartons. It embodies a bottom **11**, end walls **12** and side walls **13**, all hingedly connected to the bottom by the score lines **14** and **15**. The sheet is further provided with slots **16** which extend as continuations of the score lines **14** from the points of intersection of score lines **14** and **15** to the edges of the side walls **13**. The score lines **15** are extended from the points of intersection to the edges of the end walls **12**, such extensions being designated as **17**. It will be seen that the slots **16** and the extensions **17** define hinge flaps **18** of the end walls **12**, such flaps being designed to be folded against the side walls **13** when the box is set up, as hereinafter described. Medianly of each side and end wall is a triangular notch **19** which cooperates with a slot in the ends of the partitions to secure the partitions firmly to the side and end walls. It should be noted that this cut at **19** is not the usual slot into which the partitions merely sit to prevent side motion.

The blank **10**, as are the blanks for the partitions and cover, are provided with knockouts **20** which may be removed to furnish ventilation as required. It is usual practice in the industry to increase the number of openings for warmer weather and to decrease the same during colder periods. The number of openings are likewise varied according to the number of chicks being shipped.

The interior of the box is divided into compartments, four in the box shown in the drawings, by means of vertical partitions **21** and **22** set at right angles to each other. Such partitions, as illustrated herein, are made of double thickness corrugated board with the corrugations extending vertically to furnish additional strength when the boxes are stacked. It will be seen from Figures 2 and 3 that they are subtantially the same except for the position of the center slot and the variation in length occasioned by the rectangular box. Partition **21** has the median slot **23** extending downwardly from the top whereas partition **22** has the slot **24** extending upwardly from the bottom so that the two partitions may be interfitted in the usual manner. Both partitions are likewise provided wih slots **25** near the ends of the partitions, which slots define end portions **26**. These end portions are adapted to extend outwardly beyond the walls of the box and insure proper spacing between boxes.

The upper edge of each partition is formed with two upstanding elements **27** which are designed and positioned to come up through corresponding slots in the cover. Each element **27** is furnished with a perforated cut score **28** made to a depth sufficiently to sever the corrugated board up to the last liner, as shown in Figures 9 and 10. It will be noted from Figure 3A that the cut does not go through the opposite side of the partition so that the last liner acts as a hinge for the top half. By

using a perforated cut score the element **27** remains intact and in the vertical position shown in Figure 9, thus permitting the cover with its corresponding slots to be easily slipped over such elements. It is then a simple matter for the shipper to break the perforated cut score and fold the upper half of the element **27** back against the lower half as shown in Figure 10. Element **27** is further provided with a locking tab **29**, which fits into a cut out in the cover of the box when the element **27** is folded back on itself. Where shipping conditions are such that it is not necessary to lock the cover in place, as in the case of some short trips, the upper halves of the elements **27** and the locking tabs **29** may be removed by cutting off the elements along the lines on which the perforated cut scores **28** are made. Furthermore, where other means are to be employed for holding the elements **27** in folded position, the locking tabs **29** may be omitted.

The blank **30** for the cover, shown in Figure 4, embodies a flat portion **31** and end and side flanges **32** and **33**, all hingedly connected to the flat portion by the score lines **34** and **35**. The slots **36** at each corner permit the flanges to be fitted over the box body and projecting end portions **26** at each side of the box. These flanges are then secured at each corner of the cover by staples **37** (Figure 6) or other appropriate means.

The cover **30** has longitudinal and transverse slots **38**, which are of a length and width to accommodate the upstanding elements **27** of the partitions. Each slot **38** has an H-shaped cut **39** located medianly of the slot, the crosspiece of the H being die cut to provide a cut out portion **40** which extends beyond each side of the slot. This cut out portion is of such a length and width and so located that, when the upstanding element **27** passes through the slot and is folded back upon itself, the locking tab **29** will be received into the cut out portion **40** on either side of the slot. By extending this cut out portion to both sides of the slot, it permits the partitions to be faced in either direction when assembling the box. The material adjacent this cut out portion **40** and between the long cuts of the H serves as a spring, which gives sufficiently and moves out of position as the locking tab is being pushed into the cut out, and then snaps back into its original position in the plane of the cover when the tab reaches the cut out. Since the tabs **29** and the folded over elements **27** are thus locked in place, the cover, which is held down by the top edges of the elements **27**, is firmly locked on the box.

In assembling the parts of the box, the main body blank **10** is first folded along the score lines **14** to bring the ends **12** into vertical position. The partition **21** is then secured in place by interfitting the slots **25** with the notches **19** and pressing the partition firmly downward until it meets the bottom of the box. Similarly the side walls **13** are raised and the partition **22** is inserted, the center slots **23** and **24** interfitting. It should be noted that the partitions are tightly held to the walls by a wedging action which permits the box loaded with chicks to be picked up merely by grasping the partitions. This obviates the necessity of using staples or other fastening means for securing the partitions to the walls and greatly simplifies the assembling of the box by the shipper. In addition the mere insertion of the partitions as described locks the box into a normal position. It is then only necessary for the shipper to apply one stitch **41** (Figure 5) at each corner of the box to hold the flaps **18** in place against the side walls **13**. There is no additional labor involved and the box is ready to receive the chicks.

When the box has been loaded the cover is put in place with the upstanding elements **27** of the partitions registering with and coming up through the slots **38** in the cover. Then by a mere hand operation each perforated cut score **28** is broken, each element is folded back upon itself, and each tab **29** is pressed into the appropriate cut out portion **40** adjacent the element. Thus the cover is tightly and simply locked in place.

These upstanding elements **27** have a further purpose. When folded into place, they serve to space and support a second box stacked on the first. By constructing the partitions of double thickness corrugated board, it is possible to stack a plurality of boxes without danger of collapse and injury to the chicks. Furthermore the spacing provides adequate and efficient ventilation throughout the stack.

The flaps at the corners of the cover are stitched to hold the flanges down against the projecting portions **26** on each side of the box (Figures 6 and 8). This construction gives the shipper additional strength and ventilation for the chicks when boxes or stacks of boxes are packed side by side.

Figures 11 and 12 show blanks **42** and **43** from which a modified box and cover may be constructed. Instead of the upstanding elements **27** being made a part of the partitions as shown in Figures 2 and 3, they are formed as parts of the walls. Correspondingly the longitudinal and transverse slots **38** of the cover are positioned along the score lines **34** and **35** so that they will accommodate the upstanding elements when the walls are in vertical position. In this construction the perforated cut scores **28** are preferably made so that the upper halves of the elements will fold inwardly and downwardly. The cuts **39** and the cut out portions **40** are then likewise on the inner side of the slots **38**. Since there is no necessity for additional upstanding elements on the partitions, such partitions can be cut off so that they will be the same height as the walls throughout their entire length.

As illustrated in Figures 11 and 12, the elements on the walls and the cover slots are placed medianly of each wall, in which case the walls can not be notched for interfitting with the partitions as described above. The partitions can then be secured at their ends to the box walls by stitching or some other customary manner.

Where the walls are to be notched for interfitting with the partitions, the blanks **44** and **45** shown in Figures 13 and 14 can be employed. A pair of upstanding elements **27** are formed on each wall and corresponding slots are provided on each edge of the cover. In all other respects the elements, tabs, cut out portions and the manner of locking are the same as heretofore described. Again, as in the case of the box formed from blanks **42** and **43**, the partitions are without upstanding elements.

Thus it will be seen that the herein disclosed invention provides a new and useful box particularly adapted for the shipment of live chicks, which is fabricated from corrugated board, which includes means for securely affixing the partitions to the box body, which has a simplified locking arrangement for holding the cover on the box, which insures adequate and efficient ventilation on all sides and the top when a plurality of boxes are stacked, which provides increased protection for the chicks, and which is simple in design, rugged in construction and economical in manufacture. Although designated as a chick box it will be understood that it may be used for other purposes.

Since certain changes may be made in the above product and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shipping box comprising a box body; a cover having slots and locking means, said means comprising a cut out portion adjacent a slot and a spring flap defined by said cut out portion and slits extending transversely of the slot with their ends in spaced relation; upstanding

elements of corrugated board connected to the box body which elements project through the cover slots, said elements each being cut-scored to the last liner of the corrugated board to provide a hinge on which the element is folded back upon itself toward the cut out portion, whereby the top end edges of the element butt against the cover; and tabs on said elements which fit into the cut out portions of the cover as the flaps are depressed and lock the elements in folded position as the flaps return to position.

2. A shipping box comprising a box body; a cover having slots and locking means, said means comprising a cut out portion adjacent a slot and a spring flap defined by said cut out portion and slits extending transversely of the slot with their ends in spaced relation; partitions of corrugated board secured to the box body and having upstanding elements which project through the cover slots, said elements each being cut-scored to the last liner of the corrugated board to provide a hinge on which the element is folded back upon itself toward the cut out portion, whereby the top end edges of the element butt against the cover and the edges along the cut-scored line provide a double thickness support for other boxes to be piled on the box; and tabs on said elements which fit into the cut out portions of the cover as the flaps are depressed and lock the elements in folded position as the flaps return to position.

3. A shipping box comprising a box body; a cover; upstanding elements of corrugated board connected to the box body; slots in the cover of a width approximately equal to the thickness of the upstanding elements; locking means in the cover, said means comprising a cut out portion adjacent a slot and a spring flap defined by said cut out portion and slits extending transversely of the slot with their ends in spaced relation; said upstanding elments projecting through the cover slots and each being cut-scored to the last liner of the corrugated board to provide a hinge on which the element is folded back upon itself toward the cut out portion, whereby the top end

edges of the elements butt against the cover; and tabs on said elements which fit into the cut out portions of the cover as the flaps are depressed and lock the elements in folded position as the flaps return to position.

4. A shipping box comprising a box body; a cover; partitions of corrugated board secured to the box body and having the corrugations running vertically; upstanding elements on the partitions; slots in the cover of a width approximately equal to the thickness of the upstanding elements; locking means in the cover, said means comprising a cut out portion adjacent a slot and a spring flap defined by said cut out portion and slits extending transversely of the slot with their ends in spaced relation; said upstanding elements projecting through the cover slots and each being cut-scored to the last liner of the corrugated board to provide a hinge on which the element is folded back upon itself toward the cut out portion, whereby the top end edges of the element butt against the cover and the edges along the cut-scored line provide a double thickness support for other boxes to be piled on the box; and tabs on said elements which fit into the cut out portions of the cover as the flaps are depressed and lock the elements in folded position as the flaps return to position.

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