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CHICK BOX CONSTRUCTION
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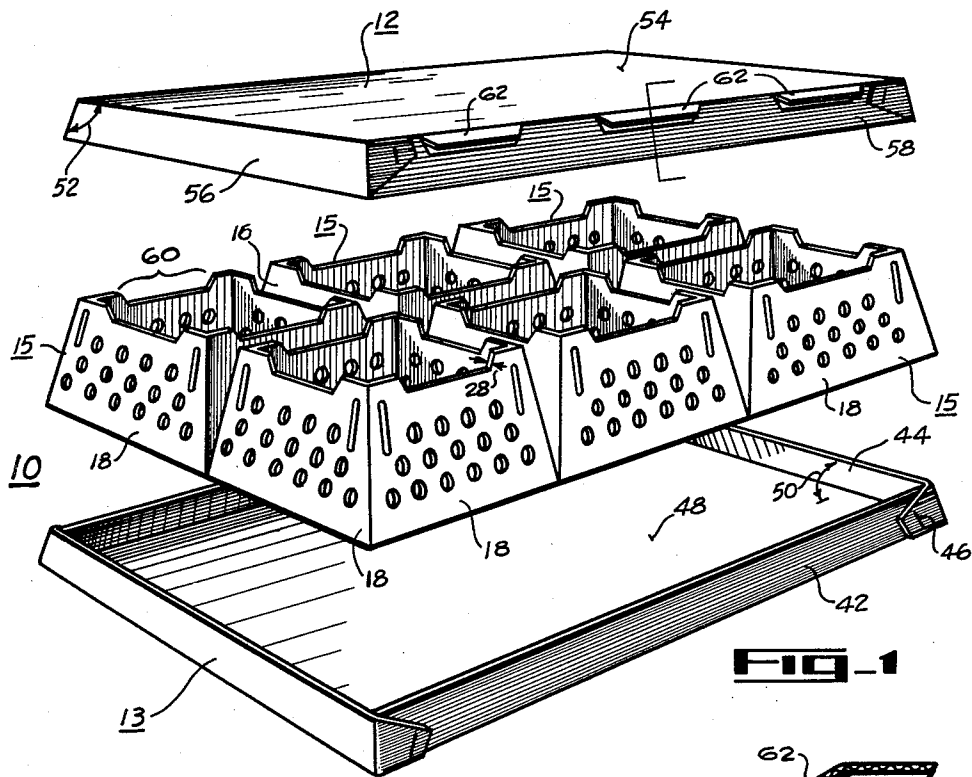


FIG-1

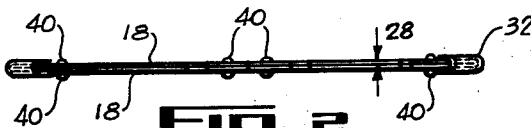


FIG-2

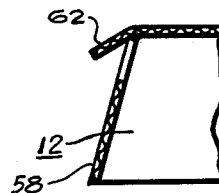


FIG-4

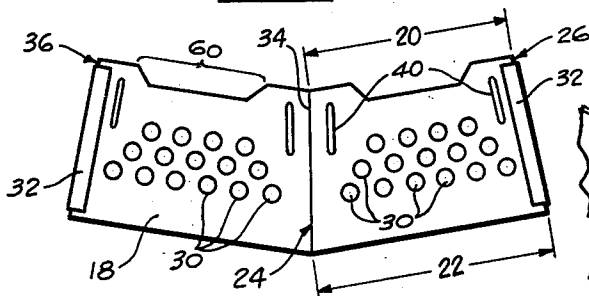


FIG-3

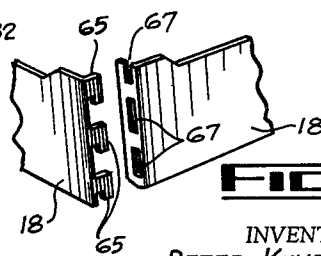


FIG-5

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CHICK BOX CONSTRUCTION

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6 Claims. (Cl. 119-19)

This invention relates to an animal container construction, and more particularly to an improved construction of such container for carrying and transporting live baby chicks.

The transportation of live baby chicks from the hatchery to the chicken rancher has always been beset with many difficulties. First of all, at the hatchery the problem of minimizing the handling of chicks arises. Usually the chicks, after they are hatched, are removed from the incubator and placed into bins according to the type of chick that has been hatched. Thereafter, the chicks usually are handled at least once or twice, or more, again, before they are finally placed into the shipping container for shipment to the egg rancher. In present day usage, four-compartment shipping containers are used, having about twenty-five chicks per compartment. Ventilation and sickness of the chicks in the compartment have always presented a difficult problem in the transportation of the chicks. Therefore the art has devoted many of its innovations to these problems.

A baby chick, when it is subjected to extremes of heat or cold, develops what is known in the trade as "pasting." When the droppings of the baby chicks are not properly discharged from the chick, they "paste" on the back of the chicks. "Pasting" of the chick ultimately causes its death, as it cannot properly discharge the droppings. Therefore, extremes of heat and cold, or rapid changes of temperature, must be avoided, through proper air circulation throughout the compartments in the container, to prevent pasting. Proper ventilation is one of the reasons that shipping containers have normally been limited to four compartments. Thus, each one of the compartments has at least two sides in direct access with the air around the entire container.

The present invention seeks to overcome the difficulties of the prior art with respect to ventilation and air circulation between compartments, and seeks to enhance the health of the chicks, through minimization of handling. The present invention uses individually constructed compartments. The compartments have a truncated or frusto-section of a rectangular pyramid structure, with a greater lineal dimension at the base of the compartment than at its top. The compartments may be employed in groups in any number in excess of two, to form a container and may particularly be used in numbers such as 6 or 9, heretofore believed prohibitive, and still provide good ventilation throughout the box construction. The compartments are set in groups in a box bottom which, through the provision of angular sides, complementing the bottom of the compartments, holds the bottom of the compartments, and through angular sides of the box top also complementing the top of the compartments, holds the top of the compartments and thus the entire construction, together.

As each of the compartments are individually constructed, that compartment may be used by the hatchery as the structure into which chicks are originally segregated into units of about 25. Through the addition of a removable bottom sheet, the chicks may be transported in the compartment and placed directly into a box bottom by removing the bottom sheet. Therefore, a plurality of compartments may be aligned in the box bottom, thus segregating the group of chicks to be transported into the compartment size of about 25, and having eliminated unneeded in-between handling.

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When the compartments are all assembled between the box tip and the box bottom, the pyramidal construction defines V-passageways for ventilation, intermediate adjacent of the compartments. Thus the greatest ventilating capacity is at the top of the container, so that even when 9 of the compartments are placed together, there are four V-passageways permitting air circulation and ventilation around the surrounded center compartment, thus giving adequate ventilation for the chicks contained in that compartment. It is therefore no longer necessary to provide the exterior or outside wall for each of the compartments.

In addition to the objects and advantages aforesaid, it is an object of the present invention to provide a chick box construction with improved air ventilation.

It is another object of the present invention to provide a chick box construction in which the compartments themselves are unitary structures which may be combined together with other of like compartments between a box top and box bottom, to effect an overall chick box construction of a desired size.

It is another object of the present invention to provide individual compartments which may be collapsed after use, and stored in a flat folded form, for subsequent re-use if so desired.

It is another object of the present invention to provide a chick box construction in which a compartment need not be indirect contact with the atmosphere surrounding the box, and may be surrounded by other compartments, and still provide good ventilation for the chicks contained in said compartment.

It is another object of the present invention to provide a chick box construction utilizing individual compartments therein, which construction is enhanced in its ability to be stacked with other like chick box constructions, by the strength of the compartment construction.

Various other objects, advantages and features of the invention will be apparent from the following specification, when taken in connection with the accompanying drawings, wherein the preferred embodiment is set forth for the purposes of illustration.

In the drawings:

FIGURE 1 is an exploded view in perspective showing a preferred chick box construction embodying the features of the invention;

FIGURE 2 and FIGURE 3 each show, respectively, an individual compartment, which in FIGURE 2 is shown in a storable flat folded manner an end view thereof, and in FIGURE 3, a plan view thereof, in its flat folded manner of FIGURE 2.

FIGURE 4 is a view in section of a portion of the box top showing the regulatable ventilating port construction.

FIGURE 5 is a view in section of a portion of the edge closure construction of one of the compartments.

Adverting more particularly to FIGURE 1, for a description of the present invention, we have shown therein a preferred chick box construction 10. Construction 10 includes generally box top 12, box bottom 13, and a plurality of unitary individualized compartments 15 each of a construction alike unto the other, and defining therebetween a plurality of V-type ventilating passageways 16. As each of the compartments 15 is identical to the other of the compartments, and each is a unit in and of itself, for purposes of our specification only one of the compartments 15 is described in detail.

Compartment 15 may be three, four, five, etc. sided, or may be round, is preferably shown as a four-sided compartment, each of the side members 18 having a construction similar and identical to that of the other sides of the compartment. Basically, side member 18 as shown in plan view in FIGURE 3, joined integrally with another

side member, has a pre-determined top dimension 20, and a bottom dimension 22 that is greater than the top dimension 20. The edges 24, 26, of the side member 18 are of course slanted from the perpendicular extending from the bottom toward the top of the side member 18. The side member 18 also may be described as a planar member, all lines substantially lying in one plane, with a slight thickness 28 to the side member 18.

Looking at side member 18, it will be seen that it has a trapezoidal-like appearance. There may be also formed in and through side member 18, a plurality of ventilating openings 30, in such number and amount as may be desired. Side member 18 and the entire box construction may, if desired, be made of corrugated cardboard, fiberboard, or a plastic construction, or any like material, and is preferably shown in the instant embodiment to have its top and bottom made of a corrugated cardboard, and the side members of the compartments of a plastic with considerable flexibility.

Each of the sides 18 may be individually formed and joined together by stapling, adhesive tape or paper, such as is exemplified by tape 32, in FIGURES 2 and 3. The sides are preferably constructed as generally shown in FIGURES 2 and 3. Two adjacent side members 18 are formed together as a unit with joined edges forming corner 34 in a flexible bending condition, and the edges 26 and 36 of members 18, having like members 18 fastened thereto, at their adjacent edges. In this manner, for storage purposes, the compartment 15 may be folded flat, as shown in FIGURES 2 and 3, and stored in that manner. In the event plastic is used for the side members 18, as exemplified, ridges 40 may be used to permit separation of adjacent stacked side members, one from the other, so as to permit air circulation between stacked adjacent of the members, or permit sterilization gases or fluids therebetween.

The compartment 15 so constructed is a unitary structure supported by its own construction and capable of uniting with the bottom and top to form the container 10. The compartments in practice employ a plurality of compartments 15 in groups of two or more to form a conveniently sized container 10. The preferred embodiment shows the use of six compartments grouped together with their adjoining bottom edges abutting one another as placed in box bottom 13. Intermediate the compartments are the passageways 16. Passageways 16 which are exemplified as V-shaped passageways, will assume the shape of the particular cross-section of the truncated pyramid compartment used, and are V-shaped because exemplified embodiment has a rectangular cross-section. It is desired to have the maximum ventilating capacity, in accordance with the present invention, in the upper portion of the container 10. This is provided by the truncated construction of the compartment 15, providing the passageways 16 for air circulation or ventilation between adjacent of the compartments. It is therefore within the ambit of the present invention to utilize 9 compartments 15 and have one surrounded by compartments, still providing good ventilation for the chicks in the surrounded compartment.

The construction using a truncated or frustosection of a rectangular pyramid also provides the over-all box construction 10 with considerable transverse strength to enhance its ability to withstand stacking of like box construction.

In operation, therefore, the box construction 10 utilizes a plurality of the compartments 15 as shown in FIGURE 1. As each of the compartments 15 is an individual unit, they are placed in side-by-side abutting relation one to the other, upon the box bottom 13. The box bottom 13 has side parts 42 and 44 which may be fastened together, for example, by stapling as shown as staple 46, at the corners. The side parts 42, 44 around the bottom 13 form with the bottom 48 of box 13, an acute angle 50. The acute angle 50 of the bottom side parts 42, 44 and bottom, complements the side members' angularity, so that side parts 42, 44 hug the side members 18 of the compart-

ments 15, holding them together in the box construction. Each of the compartments 15, of course have their side members 18 along the adjacent bottom edges abutting and bearing against one another. Box bottom 13 may also serve as a feeding tray for the chicks contained therein, after delivery and removal of the compartments.

Over the compartments 15 is placed the box top 12 which is provided with an angularity 52 that is obtuse with respect to the top part 54 of box top 12, so its sides 56, 58 complement and hug the side members 18 adjacent their portions that abut the box top 12. Thus the top 12, compartments 15, and bottom 13 provide the overall box construction which holds itself together as box construction 10.

In order to further enhance the choice of quantity of ventilation of the box construction, there are provided relief areas 60 in the side members 18, to provide ventilation under the box top 12 between the compartments and passageways 16. The box top 12 also aids this ventilation by providing adjustable ports 62 formed therethrough as shown in FIGURE 4. Adjustable port 62 may be a punched-out portion of the box top 12 which can be pushed open or pushed shut as may be desired by the user of the box, in accordance with the weather conditions then prevailing.

In this specification several ways of holding side members one to the other have been described. It is also within the purview of this invention to create latch joints with latches 65 as shown in FIGURE 5, receivable in latch holders 67, in order to provide another means of fastening together adjacent of the edges of the side members 18.

The particular embodiments of the invention illustrated and described are illustrative only, and the invention includes such other modifications and equivalents as may readily appear to those skilled in the art, and within the scope of the appended claims.

I claim:

1. A unit for the carrying and transporting of live baby chicks comprising:
 - a box top;
 - a box bottom;
 - and a plurality of separable, individually constructed chick compartments disposed between said box top and said box bottom, each compartment having inwardly and upwardly inclined sides, said compartments being arranged on said box bottom so that the lower extremities of said compartments are in physical contact with the lower extremity of at least one other of said compartments, whereby the sides of each two adjacent compartments define a V-shaped ventilating air passageway between said sides, said passageway increasing in area from a minimum adjacent said box bottom to a maximum adjacent said box top;
 - the sides of each of said compartments having a plurality of ventilating openings therein to permit free passage of air between and through said compartments.
2. The invention in accordance with claim 1 in which each of said side members includes a ventilating relief area formed therein along and adjacent the top of said side member.
3. The invention in accordance with claim 1 in which the box bottom is provided with bottom side parts, said bottom side parts cooperating with the box bottom to contain and hold said compartments, said bottom side parts further having an angularity forming an acute angle with the box bottom, said angularity complementing that of said compartments.
4. The invention in accordance with claim 1 in which the box top is provided with top side parts, for holding and containing the compartments therebetween and top side parts having an angularity forming an obtuse angle with the box top, said angularity complementing that of said compartments, said top side parts having formed

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therethrough a plurality of adjustable ventilating ports.

5. The invention in accordance with claim 1 in which said compartments contain an even number of sides.

6. The invention in accordance with claim 5 in which two adjacent sides are integrally formed together as a unit, said two of said sides being joined with a like two of said sides, and means joining the two of said sides to the other, forming said compartment, said sides being substantially planar and having a trapezoidal configura-

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tion, with edges of said sides being joined one to another of said sides forming a rectangular frustropyramidical compartment.

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