

Dec. 19, 1944.

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2,365,182

CASE METHOD OF HANDLING EGGS

Filed April 24, 1943

2 Sheets-Sheet 1

FIG. 1

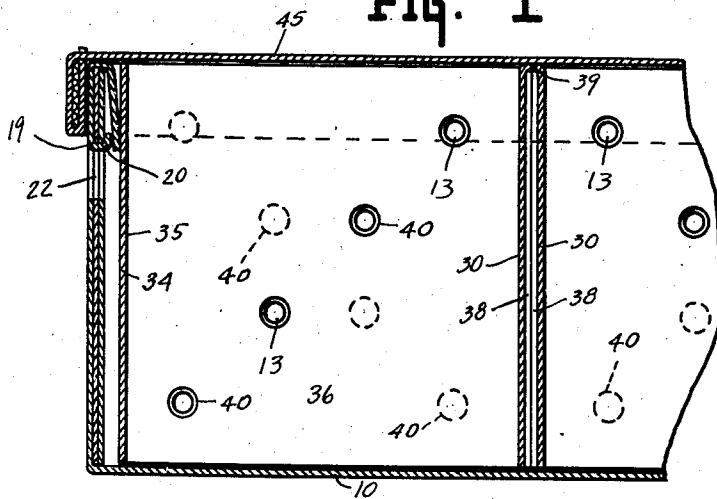


FIG. 2

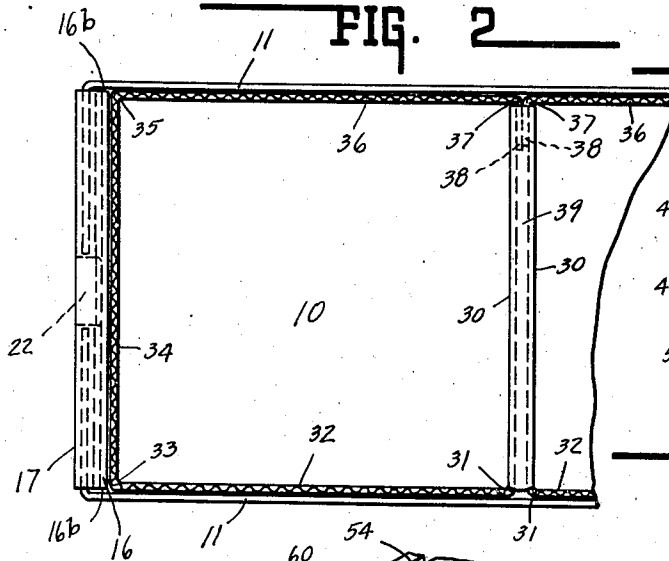


FIG. 3

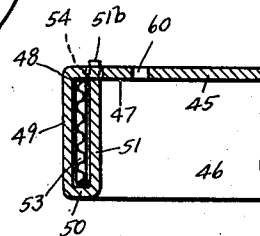


FIG. 8

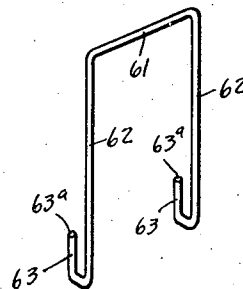
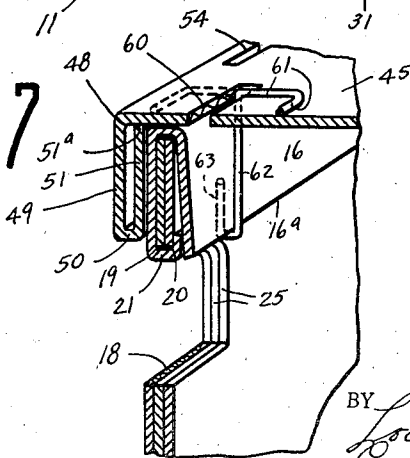


FIG. 7



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FIG. 4—

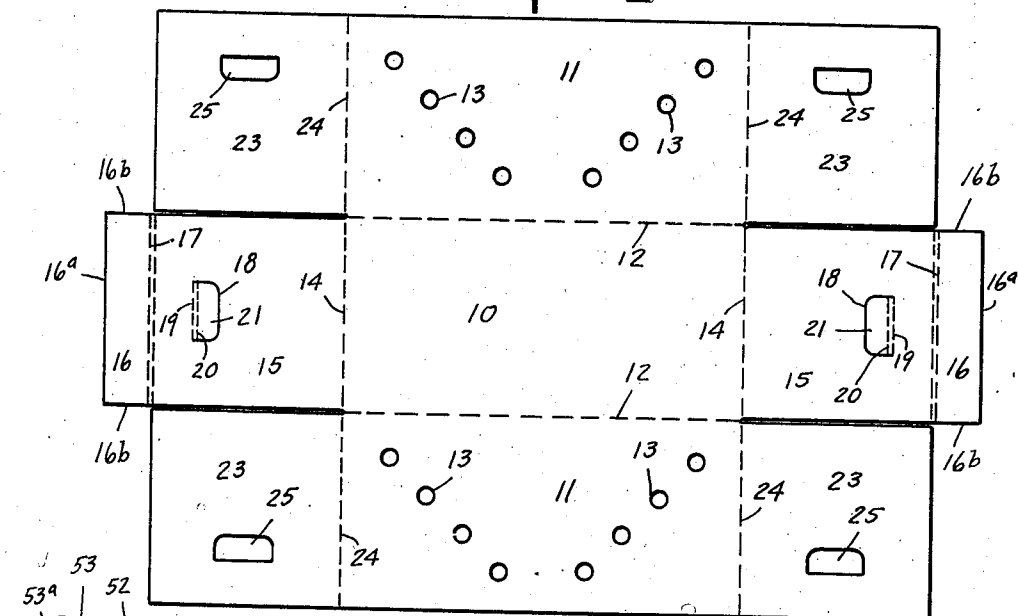


FIG. 5

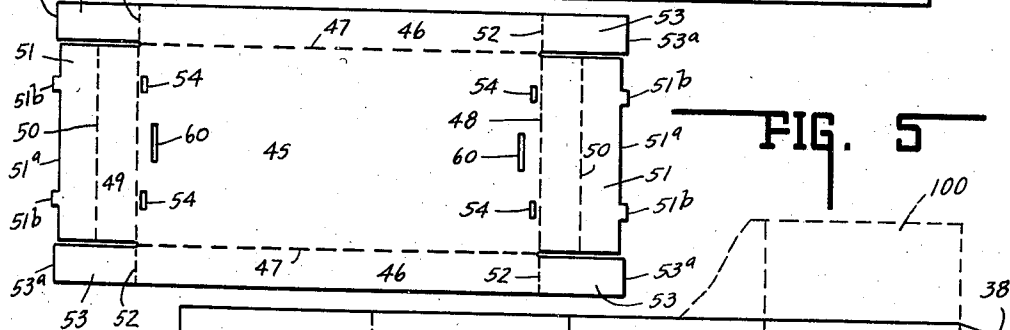
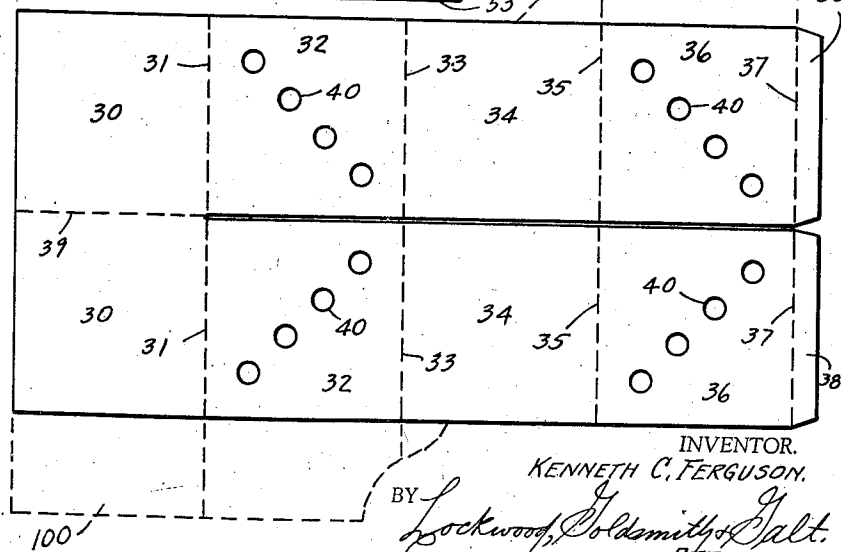


FIG. 6



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2,365,182

CASE METHOD OF HANDLING EGGS

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Application April 24, 1943, Serial No. 484,333

4 Claims. (Cl. 99-177)

This invention relates to an egg case structure and a method of handling eggs which includes utilizing the several parts of said structure.

One chief object of this invention is to provide an egg case structure that at will can readily be changed from ventilating to non-ventilating type and that will permit of egg sampling for grading purposes, all without the necessity of individually removing eggs, all as more fully recited hereinafter.

Another chief object of this invention is to provide an egg case structure that will permit eggs to be readily packed and unpacked and vice versa, for inspection and candling purposes, without requiring the use of another or transfer case, so that the original case, from the source of supply to the ultimate vendor can be used with the same eggs.

The chief feature of the present invention includes a structure adapted for egg handling, although not necessarily restricted thereto, whereby each of the aforesaid objects may be accomplished.

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

Since for a complete understanding of the several processes included herein, it is necessary to describe the several instrumentalities necessary to practice said processes, and since this invention also is directed to the structure per se, it seems desirable to herein initially describe the structure and then to describe the use thereof, and, accordingly, this orderly sequence will be followed.

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 central longitudinal section through at least half of a covered egg case structure made of paper board (preferably corrugated board), same being devoid of metal stitching or stapling, and including a multiple end wall arrangement, the eggs, egg flats, etc., normally included in a full case, being omitted for clearness, full line circles indicating a ventilating arrangement and dotted line circles indicating a non-ventilating arrangement.

Fig. 2 is a top plan view of at least one-half of a case structure, the cover being removed and the eggs, egg flats, etc., similarly being omitted, the corrugated liner being shown in plan.

Fig. 3 is a central longitudinal section (nearly half size) of one end of the case cover.

Fig. 4 is a plan view of the blank for forming the case proper.

Fig. 5 is a similar view of the blank for forming the cover.

Fig. 6 is a similar view of the blank for forming the liner and partition member.

Fig. 7 is a combined section and perspective view of a preferred form of cover lock applied to a covered case, dotted lines indicating a second lock position.

Fig. 8 is a perspective view of the locking member.

Reference will first be had to Fig. 4 and Figs. 1 and 2 for the case proper. In the former, 10 indicates a bottom and 11 opposite sides integral therewith at the coextensive crease 12 and erectible transverse thereto, as shown in Fig. 2. Each side includes a regularly spaced V-arranged series of ventilating apertures 13.

Integral with bottom 10 at each end and erectible transverse thereto at similar creases 14 are the outer end walls 15. Integral therewith is the materially shorter inside end wall flap 16, same being end united by the wider, bearing forming, crease portion 17. The outer end wall 16, centrally and adjacent the top, includes a U-shaped slit 18 and a connecting crease 19 and parallel crease 20 included in the D-shaped tongue 21 formed by the slit 18 and crease 19 and hinged to the end wall 15 at 19. Preferably the free end 16a (lower edge) of flap 16 terminates substantially in the plane of the top surface of the resulting hand hole 22, see Figs. 1 and 2.

Each side wall 11 at the side edge has integral therewith a supplementary end wall forming portion 23 and connected to the side wall by a similar crease 24. Each portion 23 is substantially of side wall height in height and of end wall width in width. These portions are erectible at right angles to the sides 11 and bottom 10, so that when lapped and end 15 is brought upward, the sides 11 then being parallel, there is formed an end wall of three thicknesses as shown in Figs. 1 and 2.

Initial retention in this formation is effected by turning the hand hole forming tongue 21 inwardly through opening 22 in end wall 15 and through the registering openings 25 in the portions 23. After this is effected, the free end of tongue 21 is turned upwardly inside of the inner-positioned portion 23. Thereafter the flap 16 is turned downwardly and inwardly as shown in Figs. 1 and 2. As stated, this is initial retention. In this connection it is observed the width across the end wall of flap 16 is such that preferably the side edges 16b of the flap 16 have frictional engagement with the confronting faces of side walls 11.

Referring to Fig. 4, observe that if flap 16 had a depth equal to the height of end wall 15 and included a hand hole therein, the case, while of the set-up, stapless type, of necessity would require the use of a blank having an over all length substantially equal to the length of the case plus four times the depth of the case and a width equal to the width of the case plus twice the height thereof. The actual required area (not the last mentioned blank area or 18 square feet) is about $13\frac{1}{2}$ square feet of board. The present form, see Fig. 4, is only about $12\frac{1}{2}$ square feet of board and the actual blank wastage is less than one square foot for a thirty dozen egg case, whereas in the four wall case $4\frac{1}{2}$ square feet or 25% more blank is required and the blank to box loss is about 4 square feet, instead of but one square foot. Thus less board is required and the illustrated form wastes less board even from a smaller blank.

Reference will now be had to Fig. 6 and Figs. 1 and 2 and initially to the former wherein a single blank includes in sequentially connected relation by creases certain wall portions of a liner or shell. Herein wall 30 is connected by crease 31 to wall 32 in turn connected by crease 33 to wall 34 in turn connected by crease 35 to wall 36 in turn connected by crease 37 to connecting flap 38. The upper series is duplicated and both series have the confronting edges of portions 30 only united by a crease 39 that is slightly wider than creases 31, 33, 35 or 37. Crease 39, of necessity, is directed oppositely to the aforementioned like directed creases 31, 33, 35 and 37.

Portion 38 laps portion 30 of the same series and is suitably secured thereto in that relation by any suitable means, such as staples or by adhesive, or by tape. When so secured two connected tubes are formed connected by portion 39 only. When these tubes are positioned side by side as in Figs. 1 and 2, observe that the connections 38 are nested between the tubes and portion 39 forms a comparatively wide upper bearing midway of the case.

Each tube in certain of the walls as illustrated in Figs. 1 and 6 is provided with a regular spaced diagonal series of ventilating apertures 40. These are slightly larger, see Fig. 1, than apertures 13 in the case wall 11. When the tubes are positioned side by side the apertures 40 in walls 36 are in V-arrangement, see Fig. 1, and the same applies to the apertures 40 in walls 32 and not illustrated in Fig. 1. Furthermore, as illustrated in Fig. 1, when the liner tubes are nested in the case apertures 13 and 40 register, hence the case structure is of ventilating character. When the double tube liner is turned end for end (not inverted) apertures 40 do not register with apertures 13 and a non-ventilating case results. Difference in aperture size is to insure positive registration.

The farmer, etc., under ideal or preferred handling conditions collects the eggs, lets them cool, then candles and grades same, if desired, following which the marketable eggs are placed in the case with the included liners utilizing the cellular division structures, eggs pads and/or flats as is customary in a wooden case. Now until the eggs are placed in cold storage, they are held in a non-ventilating case. However, while in cold storage ventilation is highly desired, so the eggs and liners are reversed for aperture registration, which may be affected by operations subsequently to be described.

In this connection, relative to the case proper, observe that the liner forms a fourth end wall, as it were, double side walls and a double wall partition that braces the side walls against inward collapse and egg breaking and a U-shaped sectioned vertical support for the middle of the cover shortly to be described. Furthermore, this liner bears against flap 16 and holds same in position so that the case proper requires no connections, such as stitching, taping and the like, nor a fourth end wall for case locking purpose.

In the case illustrated herein, or the four end wall case, each be liner equipped and the same cover (to be described) be used with each, the board required for the former complete case illustrated is but $21\frac{1}{2}$ square feet, whereas the four end wall modification requires 28 square feet of board without any material advantage being gained.

Reference will now be had to Figs. 1, 3 and 5 and especially the last mentioned wherein one form of cover blank includes a top 45, two skirt forming sides 46 integral therewith at longitudinally coextensive creases 47. Connected by crease 48 to each end of top 45 is the outside skirt forming end 49. Connected thereto by crease 50 is inside end skirt 51.

Connected to the side edges of each side 46 by a crease 52 is a flap 53. The free edges 53a thereof, when the flaps 53 are turned angularly of the top and sides and nested between end forming portions 49—51, are spaced apart preferably at least the distance apart that the hand hole is in width. So far as the present cover is concerned, however, this length can be any amount less than half the length of end portions 49—51.

The top 45, see Figs. 1, 3 and 5, adjacent crease 48 includes a parallel series of slots 54. The free edge 51a of the inner skirt end 51 includes tongues 51b which extend into slots 54 to lock the rim or skirt forming portions 46—49 together so that a stapless, stitchless, glueless and tapeless rimmed cover is obtained that can telescope the top of the case. Basically, this cover is similar to that disclosed in the copending allowed application Serial No. 415,993, filed October 22, 1941, now Patent No. 2,319,924, dated May 25, 1943, a division of application Serial No. 329,438, filed April 13, 1940, and now Patent No. 2,299,812, dated October 27, 1942.

Whenever desired herein the depth of this skirt 46—49 can be such that it terminates below the base of the hand holes in the case and in that event each skirt and portion would have registering hand holes therein, and, if desired, the stock forming the hand hole in the outer skirt end may be turned inwardly, as illustrated herein for tongue 21 of the case and seat in the case hand holes or as shown broadly in Fig. 1 of the copending egg case application Serial No. 475,892, filed February 15, 1943, Fig. 3 thereof illustrating why flaps 53 herein, in the last described modification must terminate in appreciably spaced relation or be cut out for hand hole clearance purpose. Such a modified cover has all the advantages of the cover structure recited and claimed in the aforesaid egg case copending application.

The egg flats, cushion pads, if used, and intersecting inter-locking individual cell forming partitions, well known in the industry, are not illustrated in Figs. 1 and 2 for clearness. Most flats have egg centralizing portions and the partitions seat therebetween. As a result a tier of

superposed flats and partitions, usually at least four of the former and five of the latter with one or more top and/or bottom flats and/or pads, produces a tier with a capacity of fifteen dozen eggs, there being 36 egg cells per tier and five tiers. Two such tiers positioned adjacent but slightly spaced from each other include a capacity of thirty dozen eggs, the normal capacity of a full size standard wooden egg case.

In the foregoing it will be observed that since the tubes are self-sustaining they may be telescoped upon and removed from the two tiers of eggs and at will providing the cover or case be removed. Note when the cover is removed the tubes can be drawn out of the case, and when the entire structure is inverted and the case removed, the tubes and the tiers then rest upon the cover and when the tubes are removed the eggs are more completely exposed for inspection than heretofore. These tubes also prevent hand contact with and consequent egg breaking at the hand holes in the handling of the box.

The foregoing also immediately suggests the desirability of inspection of the top and bottom layers of the eggs for grading thereof for size and clearness.

One method of handling eggs with this invention is as follows: The egg producer or local collector, after collecting or purchasing the eggs, candles same. The cooled, selected eggs are placed in the case including the liner, the then (and normal) bottom pad or flat and with the lower cellular form thereon. When one layer is filled another flat is applied, together with a second superposed cellular form and the latter is then filled.

Following the filling of the five layers in each tube, cover pads or flats are applied and then the cover is applied. The filled cases are then collected and delivered to larger collecting agencies. The latter can grade the eggs by sampling as follows: The cover is removed and the top layer of eggs exposed and examined. The cover, etc., is then replaced and the case inverted. Then the case is removed as well as the bottom cushion members, which thereupon expose the bottom layer of eggs for similar examination, the tubular portion having sufficient strength to retain the tiers of eggs on the cover. If intermediate layer inspection is desired the tubes can be removed carefully, the intermediate layer marginal eggs inspected and then the tubes are replaced. Then the case, etc., is re-applied, the case inverted and the case is ready for shipment to the storage facilities where the same examination, as well as individual candling may be performed. However, for reasons assigned the case is now reversely applied so that the case and tubes are of ventilating type preferred for cold storage purposes. End for end reversal of the case insures same.

Another desirable method is a preliminary operation as follows: The tubes are placed on the cover and the egg producer fills the subsequent top layers of the tiers and the subsequent tiers until the tubes are filled. Then the case, in inverted relation, is applied and the covered case inverted. The following advantage thereupon results. The first eggs collected by the egg producer are the eggs first sold at the country store and the last eggs collected are last sold. This is just the reverse of the present practice. Hence, the eggs sold from a case packed as herein described are of substantially

the same degree of freshness, and not of varying degrees thereof as is the present practice.

Another advantage of the present invention is that should a paper board shortage occur, covers and tubes with cellular partitions, pads and flats can be supplied egg producers and when collected by the route wagons, the route collector would merely apply his own case thereto, invert and place same in his collection vehicle. Since many small egg producers require a week to fill a case, the foregoing does not require that all producers each have a case for a week, but need only be supplied with the other parts mentioned.

This egg case structure readily lends itself to a radically different basic method of handling eggs and same, as pointed out herein, is capable of several highly desirable variations thereof.

The present invention also is peculiarly adaptable for use in the "sterilizing or processing" of the eggs. Eggs so treated essentially are subjected to a bath of hot oil for sterilization and sealing shell pores and will keep about sixty days without refrigeration. In this treatment it is necessary with wooden cases, for expeditious handling, to have one side thereof removable for egg transfer to the metal tray used for dipping the eggs in the hot bath.

The smoothness of the present case and its ease of removal from the tier of eggs and its ease of reapplication thereto, accordingly, readily lends itself to the aforesaid process and without necessitating the use of "special" cases.

No mention yet has been made of the cover locking feature specifically disclosed herein. Hereinbefore in a described modification, a cover locking feature was pointed out, see also copending egg case application Serial No. 475,892, filed February 15, 1943.

One method for cover locking includes the elongated slot 60 intermediate the slots 54 in end 45 adjacent crease 48, but spaced therefrom slightly more distant than slots 54 are spaced therefrom.

A generally U-shaped locking member, see Fig. 8, includes upper portion 61 slightly less in length than the length of slot 60. Two legs 62 terminate at their lower ends in upwardly directed parallel portions 63. Portions 62 lie inside of flap 16, as shown in Fig. 7, and project upwardly through slot 60 in cover top 45. The upwardly directed ends 63 may be seated in the corrugations exposed at the free edge 16a of flap 16, or preferably may be positioned between tongue 21 and flap 16 and bear on facial edge 16a. The cross bar portion 61 and leg portions 62 projecting above cover top 45 may be bent, as shown by full lines in Fig. 7, or oppositely, as shown dotted therein. In this manner the cover is locked to the case for the locking member is manually bendable to that extent. This locking member may be applied to the case prior to cover application or subsequent thereto. If applied prior to cover application, the portion shown lapping the cover in Fig. 7 extends straight up and passes through slot 60 upon cover mounting. If applied after the cover is mounted, the lock structure shown is passed downwardly through slot 60 until the ends 63a lie below the free edge 16a. Then the portions 63 are moved inwardly in the hand hole opening until the legs 62 lie against the then inside face of flap 16. Then the lock is elevated which positions portions 63 behind the inside face or liner of flap 16, as stated, or between flap 16 and tongue 21 lapped thereby. After the lock has been seated

by this drawing up step, the cover exposed portions are bent angularly to parallel and bear upon the cover as shown in Fig. 7 by dotted or full lines.

Note that the liner tubes retain the lock against flap 16, so that the preferred method of mounting the lock is to apply same to the case before the liners, etc., and cover are applied thereto, in other words the first method.

It is pointed out that when it is desired to further reenforce either the case ends or the partition (liner adjacent walls of the tubes) or both, a panel of case depth and width and of suitable material may be interposed in the end wall or between the partition walls. Such panel might be of solid fibre board or wood veneer. With wood veneer the grain would run up and down the depth of the case. When a double bottom and additional reinforced end is desired, a U-shaped blank of bottom length plus two end lengths and of case end or bottom width may be included. Of course, each end blank or the end portions of the U-shaped reinforcement are suitably apertured, the aperturing registering with the end wall hand hole. The foregoing is believed a sufficient disclosure so that an illustration thereof is not believed necessary.

The aforesaid tubular liner has been described as bracing the middle of the sides against inward collapse as well as serving as a cover bearing. Furthermore, the tube sides, being parallel to the case sides and tied together by the case partition formation of the tubes, prevents outward bulging of said case sides. When desired the liner blank may include at opposite sides, see dotted lines, Fig. 5, half flaps 100. When eight are provided, each of supporting wall length and half that in width, the resulting tubes at the bottom have in effect a double thickness bottom and this with the single thickness case bottom, provides a total triple thickness bottom. When alternate walls only of the tubes include such flaps 100, the total bottom is of but double thickness.

Of course, if the U-shaped insert mentioned hereinbefore also be employed, the case has still another thickness at the ends and at the bottom. The liner flaps 100, aforesaid, do not in any way interfere with the use of the case structure as previously described, except when inverted and the case removed, the flaps, then uppermost naturally would be elevated to expose the top (previous bottom) layer of eggs for inspection.

The case structure, as obvious from the foregoing, can be collapsed to knock down form for return from storage, etc., so that a great saving in space in return shipment is possible and this in no way detracts from the use of the case, because in the field same can be readily erected, for it requires no stitching, stapling, etc.

A further advantage is that should the case proper wear out, due to transportation hazards, nevertheless the liner and possibly the covers would be still serviceable. Also, since the case proper need not be used by the farmer, his wear thereof is naturally eliminated. Hence, longer life of the entire structure, or the several parts is obtained with the attendant economics resulting therefrom.

It is by reason of these advantageous results that the present paper board case has a strength and length of life, or usefulness fully equal to that of the standard wooden case.

The herein disclosed structure per se divided

herefrom is included and claimed in the continuation-in-part application, Serial No. 508,505, filed November 1, 1943.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

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

The invention claimed is:

1. A method of handling eggs utilizing a covered case structure including tubular liner means in which is included in tier formation layer spacers and individual egg forming partitions between the spacers, a case in which the liner means can be telescopically mounted, and a case cover detachably connected thereto, including sampling eggs at the top and bottom of the case structure by inspecting the top layer of eggs with the cover removed, when the eggs are case supported, and inspecting the bottom layer of eggs by removing the case from the cover while the filled case is in inverted position.

2. A method as defined by claim 1 wherein following bottom inspection, intermediate egg layer marginal egg inspection is effected by removing the liner means from the tier arranged cover supported eggs for marginal exposition of eggs.

3. A method of handling eggs utilizing a covered case structure including tubular liner means in which is included in tier formation layer spacers and individual egg forming partitions between the spacers, a case in which the liner means can be telescopically mounted, and a case cover detachably connected thereto, the case in certain of its walls having ventilating apertures there-through and the tubular liner means having similar apertures therethrough, the apertures in each having predetermined positioning, including filling a liner means including case with eggs and with the several ventilating apertures in non-registering relation for non-ventilation of the case, then inverting the case structure and removing the case proper from the cover and cover supported liner means and included eggs, and then reapplying the case thereto in reversed relation to register the several apertures for ventilation through the case when subjected to refrigerated storage conditions.

4. A method of handling eggs utilizing a covered case structure including tubular liner means in which is included in tier formation layer spacers and individual egg forming partitions between the spacers, a case in which the liner means can be telescopically mounted, and a case cover detachably connected thereto, including filling the tubular liner means with eggs, etc., while cover supported, the cover then being in inverted position, then applying the case, in inverted relation, for telescoping the liner means and seating in the inverted cover, then inverting the covered case, and thereafter removing the cover from the case for the initial dispensing of the oldest eggs therefrom and subsequent dispensing of successively fresher eggs to insure substantially the same degree of freshness in the dispensing of the entire case of eggs.

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