Aug. 19, 1969 E. E. MACCHI 3,462,064

CONTAINERS

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FIG. 1

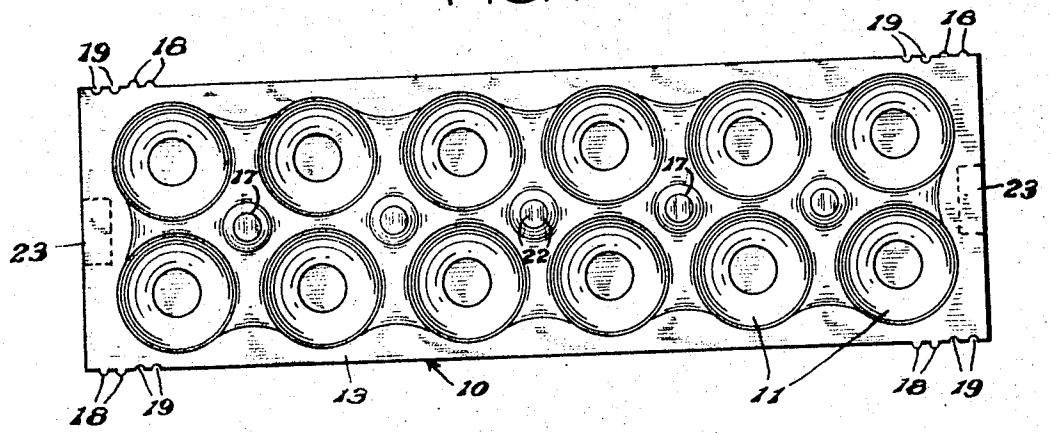


FIG. 2

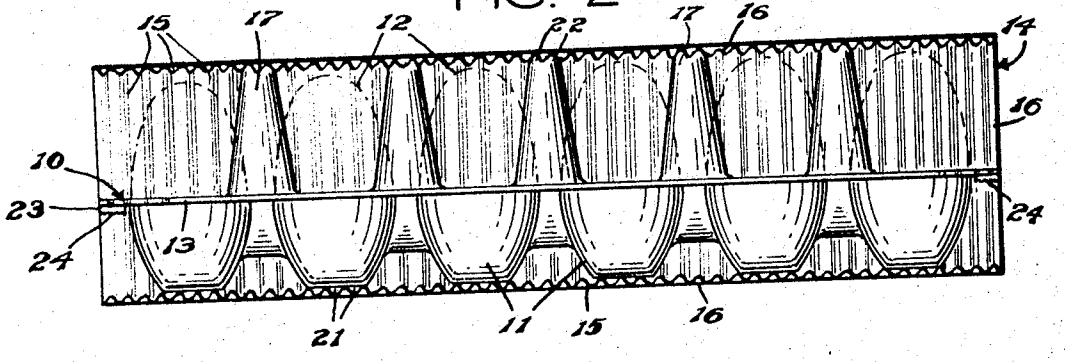


FIG. 3

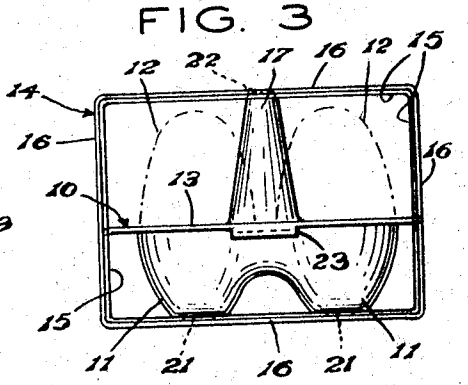
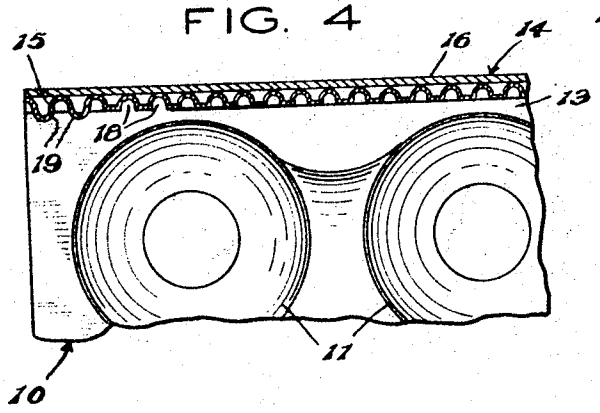


FIG. 4



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FIG. 5

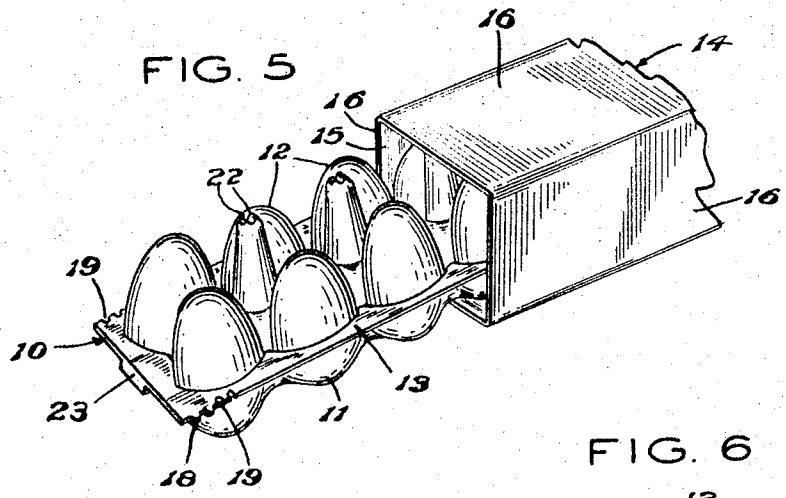


FIG. 6

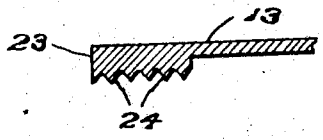


FIG. 7

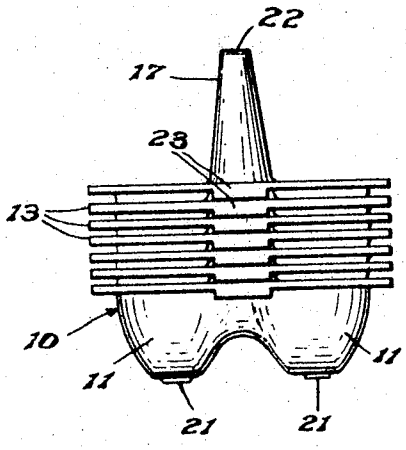
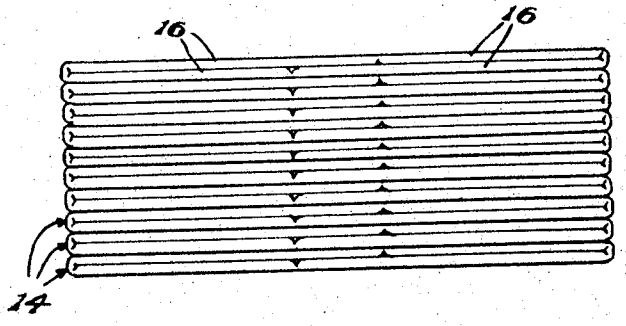


FIG. 8



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CONTAINERS

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Continuation-in-part of application Ser. No. 558,502, June 17, 1966. This application Feb. 27, 1968, Ser. No. 708,665

Int. Cl. B65d 85/32

U.S. Cl. 229—29 5 Claims

ABSTRACT OF THE DISCLOSURE

A telescopic two-piece container with an inner tray and outer carton in the form of a sleeve, the periphery of the tray being constituted as a laterally projecting rim in a plane the distance whereof from the bottom of the tray approximates and preferably is less than half of the corresponding dimension from top to bottom walls of the sleeve, permitting inspection through the open area above the rim, and said rim making line contact with the adjacent walls of the sleeve approximately midway of the height of such walls thereby deterring collapse of said walls and also preventing lateral crushing of the tray and its contents, said tray having a plurality of posts medially between the sides thereof and projecting upwardly beyond the plane of said rim into contact with the top wall of the sleeve, and the container providing interlocking means between the tray and sleeve effective automatically upon sliding the tray into the sleeve.

CROSS REFERENCE

This application is in part a continuation of my prior application S.N. 558,502 filed June 17, 1966 now abandoned and also has relation to my application S.N. 616,210 filed Feb. 15, 1967, now Patent No. 3,411,693.

PROBLEMS UNDERLYING THE INVENTIVE CONCEPT

The farmer or egg-producer, the shop-keeper and the ultimate customer have to be considered in connection with packing, stacking, shipping, handling, inspecting, selling and arranging for accessibility of packaged eggs. A farmer is not equipped to manufacture containers, nor will he use prefabricated containers which require even the simplest type of machinery to set up or put the package into use, or even such manipulations as stapling or gluing or operation of latches. He requires a container that is completely prefabricated, readily filled and closed and automatically retained closed, and one, which when filled, can be safely stacked, stored, inspected and conveniently opened by the ultimate customer, all without distortion of or crushing the container or damage to the eggs therein. The container manufacturer is likewise involved in production of a satisfactory container which can be shipped to the farmer in bulk, but in such a folded and/or stacked condition that a minimum of shipping space is required to deliver large quantities to the farmer. Both the storekeeper and very especially, the egg purchaser or ultimate user, will favor eggs in containers conducive to easy visual inspection of the number, character and condition of the eggs therein without having to open lids or engage in other manual manipulations involving time delays or possibilities of damage either to the container or to the eggs. Structural and assembly details meeting these several requirements are embodied in the present invention and will be described in detatil hereinbelow.

BRIEF DESCRIPTION OF VIEWS OF THE DRAWINGS

FIGURE 1 is a plan of the tray alone;

FIGURE 2 is a longitudinal section of the container taken just inside of the near wall of the carton or sleeve, and showing the tray in full side elevation in place;

FIGURE 3 is an end view of the container with the tray in place within the sleeve or carton;

FIGURE 4 is a horizontal sectional view of an end portion of the carton or sleeve, showing a corresponding portion of the tray in place within the carton;

FIGURE 5 is a perspective view of a portion of the carton, showing a loaded tray partially within and partially withdrawn outside of the carton;

FIGURE 6 is a section of the medial portion of the tray end rim where thickened to provide a fingerhold;

FIGURE 7 is an end view of a plurality of trays in stacked relation as delivered to a farmer or other egg producer, merchant or shipper; and

FIGURE 8 is a corresponding end view of a plurality of collapsed cartons or sleeves in stacked relation awaiting individual opening or expansion into the rectangular tray-receiving condition as shown for instance in FIG. 3.

DETAILED DESCRIPTION

In the specific embodiment of the invention illustrated in said drawings, a tray **10** is shown having a plurality of cup-like pockets **11** wherein eggs **12** may be stood and retained in separated protected positions. For orienting purposes, let it be said that the tray has a length far exceeding its width, and its depth is less than half of the width, as here shown. The depth of the pockets is intentionally made less than half of the greatest diameter or height of the eggs to be stood therein. The open top ends of said pockets are in a plane common to all, and in the same plane said tray provides a peripheral rim **13** which is thereby transverse to the several upright axes of the pockets and eggs and provides a rigidity that will prevent crushing the pockets inwardly against the eggs.

An open-ended sleeve-like carton **14** which in use is rectangular in cross-section with its four walls or panels **16** each also rectangular and of substantially equal length as the tray **10**, is provided to enwrap the tray upon sliding the tray into an end of said carton or sleeve. The carton has a height between its bottom and top walls in excess of the depth of the tray by a considerable amount, here shown as more than double that depth, and adequate to accommodate the height of the eggs standing in the tray pockets **11**. This excess of height of the sleeve over the depth of the tray, enables a person to readily peer into the container through its open ends and see the eggs therein for inspection as to size, color, number and condition.

The carton is a paper product which is preferably smooth on its outer surface, but has corrugations **15** on its inner surface, said corrugations extending circumferentially of the inner surface of the carton or sleeve transverse to the length-wise dimension of the sleeve. The corrugations consequently are upright on the side walls **16**. Thus the corrugations of the several walls will be parallel to the end planes of the carton and those of the side walls will be parallel to the axes of the egg-pockets, all corrugations offering reenforcement against collapsing of the carton or sleeve and against crushing of the eggs carried by the tray.

Movement of the tray, either for insertion into or removal from the carton or sleeve, has to be in a direction transverse to the corrugations, and by virtue thereof and by judicial selection of widths of tray and carton, frictional retention of the tray in place is advantageously obtained. Between pockets **11**, the tray is formed midway between

its side edges, with upstanding posts **17**. The overall height of the tray and posts corresponds to the height of the carton from bottom to top walls thereof, whereby the posts, which are at intervals lengthwise thereof, will provide a line of support at the middle of the top wall of the carton and with the aid of the transverse corrugations of said top wall, will prevent depression thereof and prevent crushing the eggs when subjected to extraneous forces.

The container of this invention may furthermore provide means in addition to the frictional engagement mentioned above, for more positively obtaining retention or interlocking of the tray with respect to the sleeve or carton. First it may be further explained that the dimensional proportions from the judicial selection referred to above, are such that the width of the tray between the outer longitudinal edges of the rims **13** is slightly greater than width of the sleeve measured across the most inwardly projecting peaks of the corrugations of the side walls **16**, so that the rims exert a pressure against those corrugations where passing over the same. The resultant pressure of rim **13** against the serrations at point of contact has a tendency to flatten the corrugations thereat and also tends to bow the side walls **16** outwardly to a very slight extent counteracted by the resilient resistance of the corrugations to keep the wall straight. Thus a frictional retention is attained.

An example of additional means of retention of the tray from inadvertent sliding, comprises a positive interlocking engagement with the corrugations, one instance of which is here shown proximate to each end of the tray. According to this disclosure, a pair of teeth **18**, integral with the rim **13** of appropriate depth and spacing, projects laterally to engage within the grooves of the corrugations. Also is shown a pair of notches **19** of proper depth and spacing to receive corrugations therein. The interengaging means may comprise either the teeth **18** or notches **19** or both. It may also be pointed out that the interlocking means is at each end of the tray and that they are of reverse character at the two sides of the tray, that is, at one side the teeth are most proximate to the end of the tray whereas at the opposite side of the same end of the tray, the notches are most proximate to the tray end. Likewise at each side of the tray there is reversal of relation of teeth and notches at opposite ends of the tray, so that the side reach of rim **13** having teeth **18** most proximate to one end of the tray will have notches **19** most proximate to the other end of the tray. Thus diagonally opposite interengagement means corresponds in arrangement of teeth and notches to the respective tray ends thereat.

Another instance of interlocking engagement between tray and carton may comprise provision of downwardly projecting teeth **21** under and integral with the bottoms of pockets **11**, and corresponding provision of upwardly projecting teeth **22** at the top ends of posts **17**. All of said teeth extend lengthwise of themselves in a direction transverse to the tray and make appropriate projection adequate to interengage with the corrugations of the bottom and top walls of the carton when inserting the tray into the carton through an open end thereof. Either the downwardly directed teeth **21** or the upwardly projecting teeth, or both, may be employed. Again, it may be said that resiliency of the carton walls accommodates forceful sliding of the teeth **21** and **22** across the corrugations, but deters inadvertent disengagement of the tray from the carton by unintentional sliding.

In any of the instances accomplishing the interlocking of the tray with respect to the sleeve or carton, inspection of the eggs may be accomplished without withdrawing the tray either in whole or in part, but when eggs are desired, the tray is withdrawn far enough for that purpose. Due to the fact that the rim **13** is at a level below mid-height of the eggs, a fingerhold on an egg can be accomplished well below the sharply tapered portion of the egg and therefore only a light grip on the egg is required to lift the egg from its pocket, this being done without need of severe squeezing which might break the eggshell, and also without likelihood of the fingers sliding along the taper of the egg, a circumstance which occurs when an egg has to be grasped where tapering sharply.

When the tray is partially withdrawn, the forward interlocking means becomes disengaged, but the rear ones still function, since there are corrugations in the sleeve or carton for its entire length. No matter which end of the tray is withdrawn, the opposite end still will be detained by the interlocking means thereat, and will be kept from tilting at the withdrawn end by continued top-wall engagement of posts **17** still within the carton. Furthermore, since rim **13** engages the side walls **16** intermediate of the top and bottom edges thereof, the carton **14** is maintained in its cross-sectionally rectangular condition and protects all eggs **12** remaining in the tray and still within the carton. In fully loaded condition, and with the tray **10** fully telescoped in the carton **14**, the container is safely handled, stacked and shipped, because of its rigidity and also because of the multiplicity of interlocking means any or all of which may be present for preventing sliding of the tray until intentionally and forcefully overcome as a user withdraws the tray in whole or in part. The tray remains intact when removed from the carton, and may be reinserted thereinto if desired since the interlocking retaining means remains intact and is capable of reuse. The carton is completely reversible in use with the tray, that is, the top of the carton may be located for use as the bottom and the bottom as the top, and either end of the tray may be inserted into either end of the carton, both the tray and the carton having corresponding symmetry of rectangular configuration.

To aid in the manipulation of the tray into and out of the carton, rim **13** at each end of the tray is constituted as a pull-tab or finger-grip **23**. Adequate projection of the rim **13** medially between the sides of the tray is therefore provided, and preferably the rim is strengthened thereat by increasing thickness of material there involved of which the tray is made, enabling the finger-grip **23** to be firmly grasped, and, as shown more especially in FIG. 6, a surface of said finger-grip may be roughened, as at **24**, so as to prevent finger slippage when grasping the same.

Finally, let it be said that the posts **17** are hollow, with the interior conforming to the exterior, and in like manner the interior of the egg-pockets **11** conforms to the exterior thereof, so that the manufacturer of the containers may nest a plurality of the trays in a compact stack, as shown in FIG. 7, for shipping purposes. The stacked trays are readily available successively for use by the farmer or egg-merchant for loading purposes. Also, as shown in FIG. 8 the cartons **14** may be folded down flat in two-ply condition and stacked for shipping purposes. The recipient, by squeezing at opposite edges of a single sleeve, will thereby cause it to dilate or expand to take the desired form for use of the hollow sleeve ready to receive a tray therein, no machinery or involved manipulations being required.

I claim:

1. A container comprising an open-ended sleeve carton of greater length than height and width with each wall thereof rectangular and with opposite walls parallel to each other, all of said walls having corrugations within the carton with the corrugations of each wall extending in a direction transverse to the greatest dimension of the wall on which located, and a tray having a longitudinal dimension exceeding the height and width dimensions, said tray being insertable longitudinally through an open end of said carton, said tray having a longitudinal upper edge portion at each side thereof at right angles to said corrugations of the carton, said upper edge portion making slidable engagement across the corrugations of the two opposite side walls of the carton, said tray having longitudinally thereof a series of egg-receiving pockets the axes whereof are parallel to each other and perpendicular to said upper edge portions, aforesaid corrugations

of the side walls of the carton being in parallelism to said axes of the pockets to prevent crushing in an axial direction of the pockets, whereas the corrugations of the other two walls provide cushioning at top and bottom of eggs standing upright in said pockets, said cushioning being restricted to minimum depression of the wall toward the eggs by virtue of stiffened said side walls of the carton.

2. A container in accordance with claim **1**, wherein said upper edge portion is at a height in proximity to mid-height of the side walls of said carton.

3. A container in accordance with claim **1**, wherein said tray provides posts medially between side edges of said upper edge portions, said posts projecting above upper edge portions to and into engagement with the corrugations of the top wall of said carton thereby maintaining space above said upper edge portion for viewing contents of the tray through said open ends of the carton.

4. A container in accordance with claim 3 wherein said carton are foldable into flat condition and the tray

provide conforming egg-pockets and hollow posts enabling nesting of a plurality of trays, whereby a plurality of cartons and trays may be stacked for shipment occupying minimum space until put into use.

5. A container in accordance with claim **1**, wherein a finger-grip is provided at each end of the tray medially between the sides thereof and in spaced relation from both the top and bottom walls of the carton.

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DAVID M. BOCKENEK, Primary Examiner

U.S. Cl. X.R.

217—26.5; 229—2.5, 10.