April 12, 1966 P. D. FRIDAY 3,245,600

LID LOCK CARTON

Filed Nov. 1, 1963

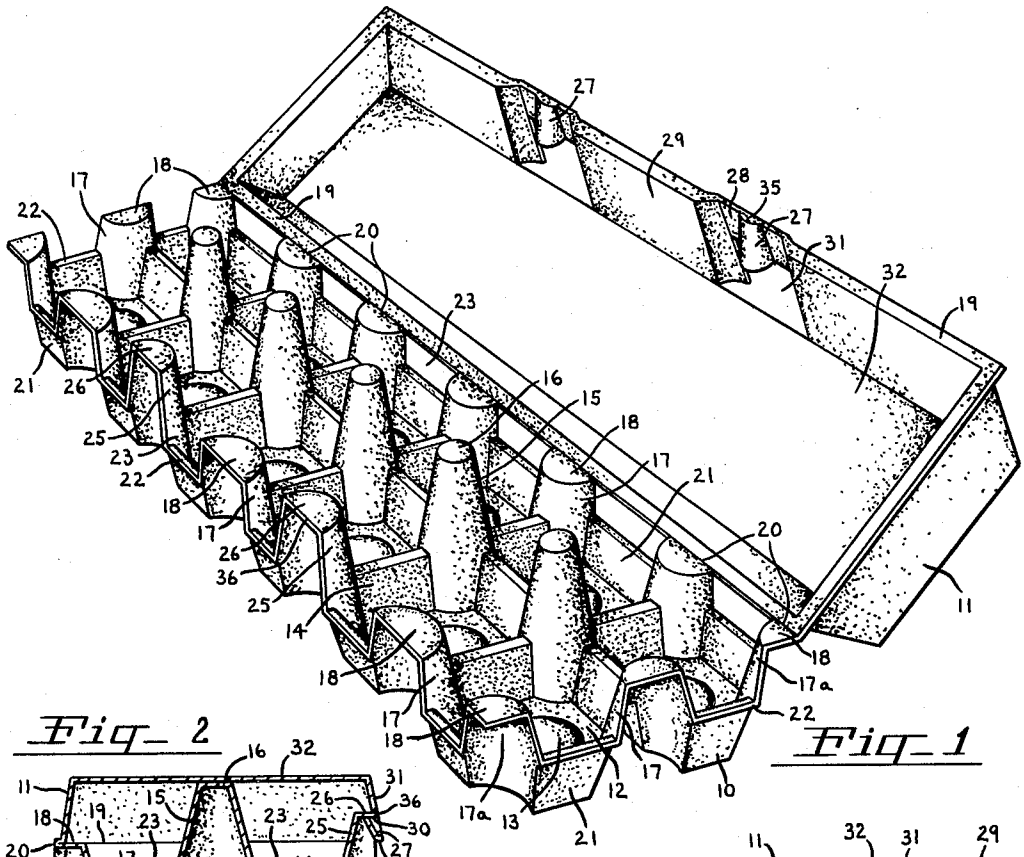


Fig. 1

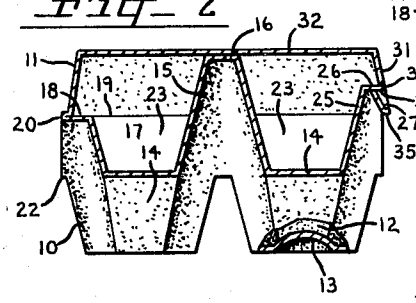
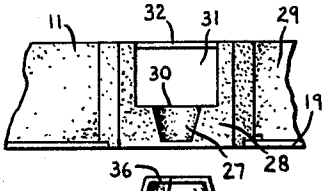


Fig. 2



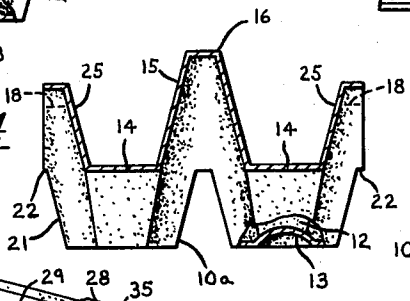


Fig. 4

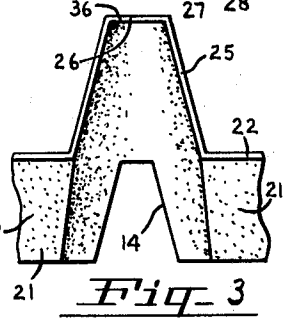


Fig. 3

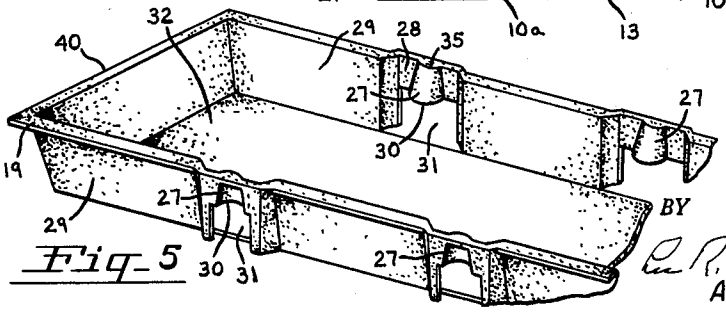


Fig. 5

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LID LOCK CARTON

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This invention relates to a carton for eggs and other fragile articles.

Most cartons for this purpose and, particularly molded pulp cartons, are deficient in their resistance to collapse whereby the contents of the cartons are often crushed or damaged when the cartons are stacked and carried one on top of another. It is desirable to have a carton which will afford better protection to its contents, particularly in the process of handling large numbers of the cartons in stacked relation. It is also desirable to have a carton in which all the contents may be viewed at least partially without opening the carton and to have an inexpensive carton which may be equipped with a transparent cover for full view of the contents.

The general object of the invention is to provide an improved carton of the type described. More particular objects are to provide a carton having improved resistance to collapse so that the contents will be protected against crushing, to provide a carton having upstanding posts to support its lid, to provide an improved cover locking arrangement, to provide a carton having a detachable cover, to provide a carton of the type described which is designed to be molded from wood or paper pulp and the like, to provide a carton in which all the contents may be viewed without opening the cover, and to provide a carton which may be equipped with a transparent cover.

The bottom section of the present carton is equipped with a row of posts in its central portion which extend up to sufficient height to support the cover whereby any weight imposed upon the cover is directly supported by these posts and not brought to bear upon the contents of the carton. The contents are nested in individual pockets which in a carton for eggs are arranged preferably in two rows. The outside walls are cut away so that a partial view is had of all of the contents without opening the carton. The cover may be either hinged or detachable and a transparent cover may be provided to afford the user a full view of the contents.

The foregoing and other objects and advantages will become apparent and the invention will be better understood from the following description of certain preferred embodiments of the invention illustrated on the accompanying drawing. Various changes may be made, however, in the details of construction and certain features may be used without others. All such modifications within the scope of the appended claims are included in the invention.

In the drawing:

FIGURE 1 is a perspective view of a carton having a hinged lid embodying the features of the invention;

FIGURE 2 is a cross sectional view of the carton of FIGURE 1 with the lid in closed position;

FIGURE 3 is a fragmentary elevation view showing the lid lock structure on the carton and lid;

FIGURE 4 is a view similar to FIGURE 2 showing a modified bottom section for use with a detachable cover; and

FIGURE 5 is a perspective view of a detachable cover in inverted position for use with the bottom section shown in FIGURE 4.

As shown in FIGURE 1, the carton comprises a bottom or tray section **10** and an integral cover section **11**. The two parts are molded of pulp or plastic in one piece with the cover in opened out position flat with the base section. The base section contains a plurality of article-

receiving pockets **12** in rectangular arrangement. The bottom of each pocket is preferably cupped upward at **13** to provide a cushioned support. The pockets are separated by inverted hollow V-shaped partitions **14** extending longitudinally and transversely. In the present instance these partitions form two rows of pockets in side-by-side relation.

Intermediate the edges of the carton these partitions merge into a row of hollow posts **15** having flat tops **16** which are of sufficient height to support the center portion of the cover as shown in FIGURE 2. Around the four sides of the carton these partitions merge into hollow posts **17** of lesser height. The posts **15** are of frusto-conical shape while the posts **17**, except the corner posts, are half cones having flat tops **18**. The four corner posts **17***a* are hollow quarter cones, also having flat tops **18**. All the top surfaces **18** are in a common plane and all the top surfaces **16** are in a common plane on a higher level.

The cover **11** has a peripheral outstanding rim flange **19** all in one plane, one edge of which is integral with the material forming top surfaces **18** on the hinge side of the bottom section. The hinge connecting the cover with the bottom section is an interrupted hinge as indicated at **20**. When the cover is closed its rim flange **19** rests on the top surfaces **18** around all four sides of the carton. Thus, the posts **17** and **17***a* may be designated as cover seating posts.

Outside wall segments **21** interconnect and merge into the half cones **17** and quarter cones **17***a*. These wall segments have upper edges **22** of less height than the cones, leaving an opening **23** through which the contents of each pocket **12** may be partially viewed when the cover is closed.

On the side opposite the hinge there are two hollow half cone posts **25** having flat tops **26** on a level intermediate the plane of top surfaces **18** and the plane of top surfaces **16**. These are locking posts which engage catch members **27** on the cover. Catch members **27** are also preferably frusto-conical in order to draw properly from the molding die. Each member **27** is a hollow inwardly projecting protuberance or lug merging into offset side wall portions **28** on the side wall of the cover opposite its hinge. The protuberance **27** has a horizontal upper lip edge **30** forming the lower edge of an opening **31** which extends up to the flat top wall **32** of the cover. The rim flange **19** is interrupted at the offset wall portions **28** and may or may not cover the small end of conical protuberance **27**.

When the cover is folded over to close the carton, the small end **35** of protuberance **27** clears the outer straight edge **36** of top surface **26** of locking post **25**, and some point on the conical surface of protuberance **27** engages this edge as side wall portions **28** overlap the posts **25**. Then, as the cover is pressed down, the post **25** and protuberance **27** yield to allow the protuberance to pass the edge **36**. Upper lip edge **30** then snaps under the edge **36** to lock the cover securely closed, as shown in FIGURE 2.

To release the catch for opening the cover it is only necessary to press the post **25** inwardly or toward the left in FIGURE 2 sufficiently to disengage the edge **36** from the lip edge **30**. The two posts **25** are close enough together so that this can be conveniently done with two fingers of one hand while the thumb bears against the hinge side of the carton base portion. With the two catches released in this manner, the other hand is free to lift the cover.

FIGURE 5 shows a detachable cover **40** having catch members **27** on its opposite sides and no hinge connection. The opposite sides of the cover are identical for use with the bottom section **10***a* shown in FIGURE 4, the opposite sides of which are also identical. There

are two locking posts 25 on each side of the bottom section 10*a* to mate with catch members 27. The cover is released by pressing the two locking posts 25 on one side inwardly so that one side of the cover may be raised in hinged movement. Then the cover may be moved laterally to disengage the catch members 27 on the opposite side.

Bottom section 10*a* is identical to bottom section 10 in FIGURE 1 except that it has no hinge and two of the hinge posts 17 in FIGURE 1 are replaced by locking posts 25. Section 10*a* has the remaining posts 17, corner posts 17*a*, center posts 15, partitions 14, wall segments 21 and pockets 12 the same as in FIGURE 1. The rim flange 19 of cover 40 rests on top of posts 17 leaving an opening 23 for inspection of the contents of each pocket as in FIGURE 1.

The detachable cover 40 may be made of pulp the same as bottom section 10*a*. For display purposes the cover 40 may be made of transparent plastic material so that the contents of the carton may be more completely viewed through the cover.

A particular advantage of the present form of construction for opaque egg cartons is that the openings 23 formed by the serrated or castellated edges provide a sufficient view of every egg in the carton to permit the customer to observe the size and color of all the eggs in all the cartons without opening the cartons.

The nature of the catch members is such that they are not damaged by repeated opening and closing of the cover whereby both the hinged cover carton and the detachable cover carton are suitable for re-use for a considerable period of time whereas in many conventional pulp cartons the catch devices are damaged the first time the cover is opened. In the case of an egg carton this permits a number of eggs to be removed from time to time and the cover re-latched securely so that the carton may be placed safely on its side or on end in the refrigerator. This is a great convenience not shared by many conventional egg cartons.

When the cartons are stacked and handled, the articles in pockets 12 are protected by center posts 15. The hollow conical shape of these posts makes the cartons extremely resistant to collapse without any additional cost in manufacture. The peripheral cover seating posts 17 and 17*a* are also three dimensional, imparting much greater columnar strength to the bottom section than exists in conventional cartons. While the posts must taper in order to draw from the molding die, they do not have to be circular in cross section but may be of polygonal section, if desired.

Having now described my invention and in what manner the same may be used, what I claim as new and desire to protect by Letters Patent is:

1. A carton comprising a bottom section and a cover section, said bottom section comprising pockets and posts between said pockets along the sides of said bottom section, wall segments of less height than said posts extending between said posts, said cover section having a rim portion resting on top of said posts and leaving openings between said posts for inspection of the contents of the pockets, an interrupted hinge for said cover on said posts on one side of said bottom section, cover locking posts of greater height than said side posts interposed between said side posts on the opposite side of said bottom section, catch means on said cover engageable with said cover locking posts, there being a plurality of rows of said pockets in said bottom section, and center posts of greater height than said side posts supporting said cover between said rows of pockets.

2. A carton comprising a bottom section and a removable cover section, said bottom section comprising pockets and posts between said pockets along the sides of said bottom section, wall segments of less height than said posts extending between said posts, said cover section having a rim portion resting on top of said posts and leaving openings between said posts for inspection of the contents of the pockets, cover locking posts of greater height than said side posts interposed between said side posts on opposite sides of said bottom section, catch means on said cover engageable with said cover locking posts for securing the cover to said bottom section, there being a plurality of rows of said pockets in said bottom section, and center posts of greater height than said side posts supporting said cover between said rows of pockets.

3. A carton tray comprising hollow inverted V-shaped partitions in a rectangular pattern defining pockets, hollow posts at the four corners of each pocket merging with said partitions, wall sections of less height than said posts interconnecting the posts along the sides and ends of said tray, the posts merging with said partitions intermediate the sides and ends of the tray being hollow center posts of greater height than said side posts, and hollow cover locking posts of height intermediate between said side posts and said center posts interposed between said side posts.

4. A carton comprising a bottom section, side posts spaced apart around the sides of said bottom section, wall segments between said posts, a cover having a flat top wall with a depending rim portion arranged to seat on top of said posts, one side of said rim portion being hinged to the top of said posts on one side of said bottom section, locking posts on the opposite side of said bottom section, each locking post having a horizontal top edge, a side wall on the opposite side of said cover arranged to overlap said locking posts, and lugs on said side wall arranged to engage under said top edge.

5. A tray as defined in claim 3, said cover locking posts being disposed on one side of said tray, and a cover hinged to said side posts on the opposite side of the tray, the center of said cover being supported on said center posts, and catch means on the swinging side of said cover engageable with said locking posts.

6. A tray as defined in claim 3, said cover locking posts being disposed on opposite sides of said tray, and a detachable cover having catch means on its opposite sides engageable with said locking posts, the center of said cover being supported on said center posts.

7. A carton comprising a bottom section, side posts spaced apart around the sides of said bottom section, wall segments between said posts, a removable cover having a top wall with a depending rim portion arranged to seat on top of said posts, locking posts on two opposite sides of said bottom section, each locking post having a horizontal top edge, side walls on two opposite sides of said cover arranged to overlap said locking posts, and lugs on said side walls arranged to engage under said top edges.

8. A carton comprising a bottom section and a cover, three-dimensional cover seating posts spaced apart along at least one side of said bottom section, a three-dimensional cover locking post between said seating posts on at least said one side of said bottom section, wall sections between said posts, said cover having a top wall and a side wall on at least said one side arranged to overlap said locking post and seat on said seating posts, catch means on said side wall engageable with said locking post, and means for securing the opposite side of said cover to the opposite side of said bottom section.

9. A carton as defined in claim 8, said securing means comprising a hinge.

10. A carton as defined in claim 8, said securing means comprising a locking post and catch means as on said one side whereby said cover is removable.

11. A carton comprising a bottom section and a cover, three-dimensional cover seating posts spaced apart along at least one side of said bottom section, a three-dimensional cover locking post of greater height than said seating posts between said seating posts on at least said one side of said bottom section, wall sections between the sides of said posts, center posts in said bottom section, said cover having a top wall and a side wall on at least said one side arranged to overlap said locking post, a flat rim

on said side wall disposed entirely in a common horizontal plane to seat on said seating posts, catch means on said side wall engageable with said locking post, and means for securing the opposite side of said cover to the opposite side of said bottom section.

12. A carton as defined in claim **11**, said securing means comprising a hinge.

13. A carton as defined in claim **11**, said securing means comprising a locking post and catch means as on said one side whereby said cover is removable.

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