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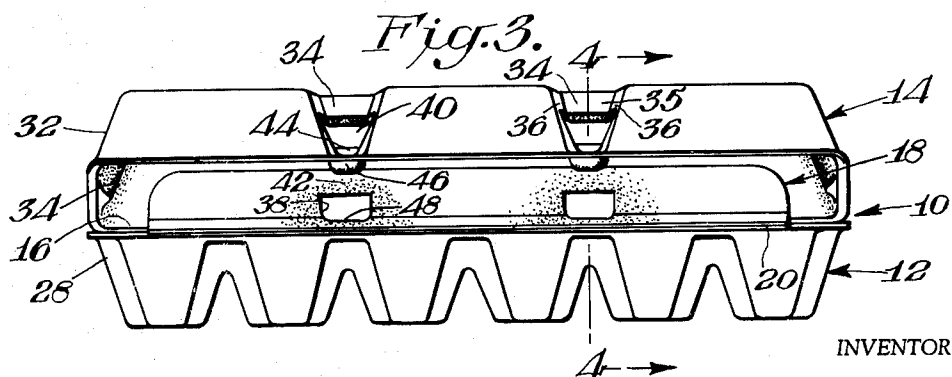
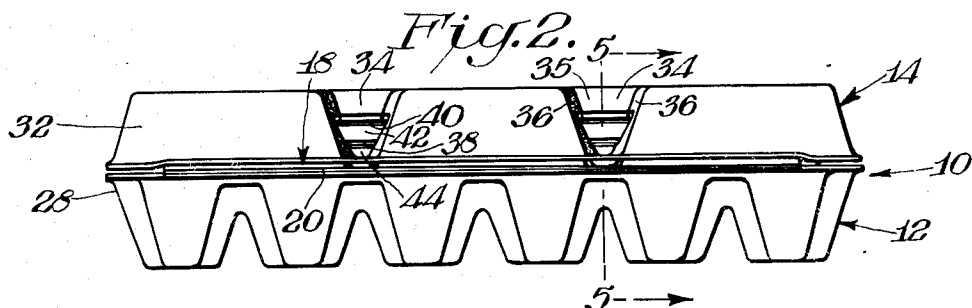
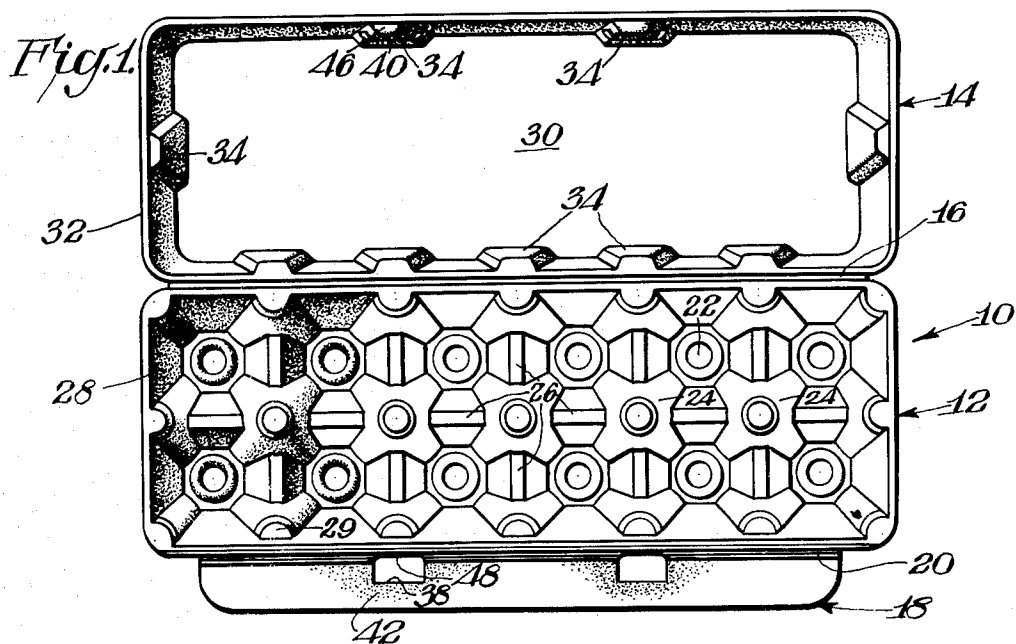
U. H. DESPRES

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MOLDED PULP CARTON LATCH

Filed Nov. 20, 1963

2 Sheets-Sheet 1



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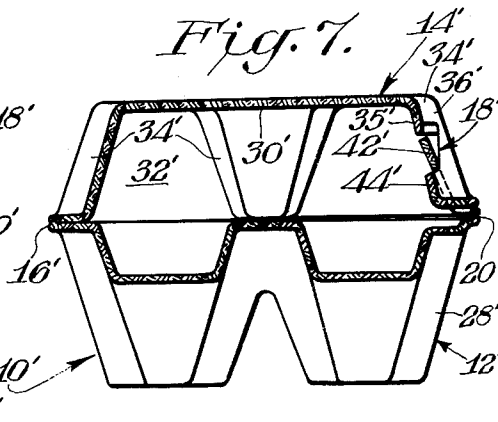
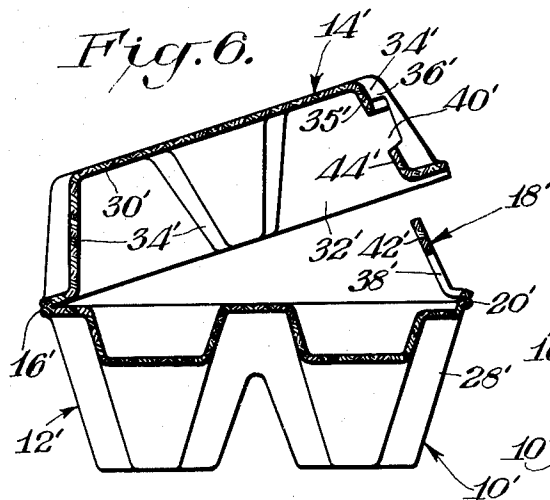
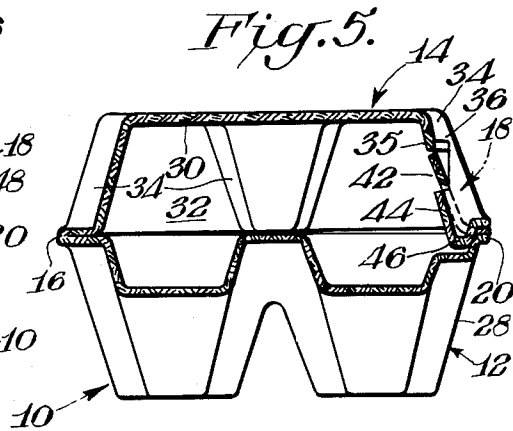
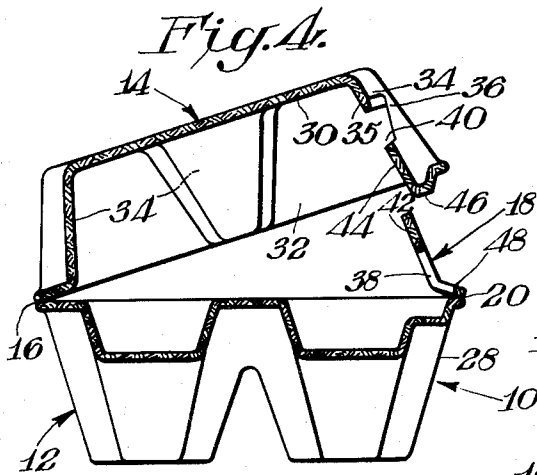
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MOLDED PULP CARTON LATCH

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13 Claims. (Cl. 229-2.5)

This invention relates to a molded pulp container, and more particularly to improved provisions for latching such cartons in closed condition.

Prior molded pulp containers are subject to various disadvantages concerning mechanism for latching the carton in the closed position. For instance, previous latches of the snap-lock variety, as opposed to the tuck-in friction flap variety, are fairly awkward to manipulate for unlatching the carton. Others, constructed along less awkward lines, have proved relatively inefficient in that they do not securely hold the carton in the closed position, and frequently involve protruding lug elements which occasionally interfere with efficient stagger stacking of the cartons in standard size shipping containers. Other designs, while perhaps more efficient and less awkward, have proved relatively difficult and expensive to form by means of standard pulp molding processes. A prior latch is illustrated in Reifers 2,990,094.

The latches on molded pulp cartons for eggs or other fragile articles, moreover, must be capable of being latched by machine and unlatched by the housewife or other consumer without damaging the eggs. A latch which requires that a flap or other member be pushed inwardly more than a very slight distance is thus undesirable, since the greater the inward push required the greater the chance of breakage to the carton contents. Also, since such cartons, for obvious commercial reasons, are made no larger than necessary to enclose a desired grade of eggs, the amount of space required for operation of a latch mechanism becomes important.

Additionally, molded pulp egg cartons, especially of the type which do not have egg pockets molded in the cover or lid, are subject to some flexibility of the depending front wall of the lid. Since latches are frequently located at least in part on this front wall, the problem of providing an easily unlatchable device that will not accidentally come open is increased as the flexibility of the carton is increased.

Accordingly, it is an object of the present invention to provide a molded pulp container of the type including bottom and top members having latch means for securing them in the closed position which obviates the above problems.

Another object of the present invention is to provide a molded pulp container wherein the latch means for maintaining the top and bottom of the container in the closed position includes cooperating bridge means to hold the container closed as well as detent means to maintain the bridge means in engagement.

Another object of the present invention is to provide an egg carton latch which occupies only a single thickness of molded pulp which may be quickly and economically molded according to known pulp molding processes.

Other features and advantages of the present invention will become apparent to one skilled in the art from a reading of the following description in conjunction with the accompanying drawings wherein similar reference characters refer to similar parts, and in which:

FIG. 1 is a plan view of the preferred embodiment of molded pulp container in the fully opened position;

FIG. 2 is a front elevational view of the container of FIG. 1 in the fully closed position;

FIG. 3 is a front elevational view of the container of FIG. 1 in a partly closed position;

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FIG. 4 is a sectional view on line 4-4 of FIG. 3 showing further details of the latch mechanism;

FIG. 5 is a sectional view on line 5-5 of FIG. 2 showing details of the latch mechanism in the closed position;

FIG. 6 is a sectional view corresponding to FIG. 4 showing a modification of the latch means of this invention; and

FIG. 7 is a sectional view corresponding to FIG. 5 showing the modified latch mechanism in the closed position.

Referring to the drawings, the latch mechanism of this invention may be incorporated in any variety of molded pulp carton having at least two portions such as a top and bottom portion which come together to a closed position. For instance, the embodiments illustrated in the drawings involve a molded pulp carton 10 for holding fragile articles, such as eggs, which has a containing or bottom section 12, a lid or top section 14 hinged at 16 to one side of the bottom, and a locking flap means 18 hinged at 20 to the other side of the bottom.

The bottom 12 may be formed with a plurality of article holding pockets 22 and article spacing posts 24 integrally molded therein. Each full post 24 is provided with four laterally extending ribs 26, each rib being offset 90° from the adjacent rib, and is surrounded by the four pockets 22, in a well known manner. The bottom 12, as can be seen from the drawings, has an upstanding wall 28 around the edge, the upper surface of which occupies a relatively flat plane. Peripherally positioned half posts 29 form an integral part of the wall 28.

The top or lid 14 may be formed with a flat body portion 30 and a depending wall 32 therearound having a depth generally comparable to the depth of the bottom wall 28. The lower surface of the wall 32 also occupies a relatively flat plane, and is of a shape and size to rest on the upper surface of the lower wall 28 when the container is closed. A plurality of inwardly extending vertical buttress ribs 34 may be formed integrally with the wall 32 of the top to provide additional strength. Two such ribs are located on the depending front wall of the cover, and each includes a flat base or web portion 35 generally parallel with the front wall of the cover and joined thereto by side portions 36. The web portion 35 joins with the base or top 30 of the cover 14. Each rib is of substantially uniform depth throughout its height, and tapers narrower toward the bottom in width. Either the top, the bottom, or both may be provided with perforations for ventilation or other purposes, if desired.

The locking flap means 18 may comprise a marginal tab of a width somewhat less than the depth of the top wall 32. The locking flap is molded in the open position, and thus retains a resilient characteristic at its hinge 20 which normally biases it in an outward direction against the inside of the front wall of the top.

The latching means according to this invention comprises two portions. One portion includes an opening 38 in the locking flap 18. In the drawings, two such openings are shown, one opposite each of the two buttress ribs 34 on the front wall of the cover. Each opening 38 may be referred to as a bridge-receiving cavity, and each extends from a point intermediate the top and bottom of the locking flap to the inner edge of the flap adjacent the hinge 20, and is of a width which is greater than the lower narrow portion of the buttress ribs of the cover front wall.

The other portion of the latch means includes a somewhat similar opening 40 located in an inwardly extending vertical buttress rib 34 of the front wall 32 of the top. Again, two such openings 40 may be provided, one in each of the two buttress ribs in the front wall of the top. Each opening 40 may also be referred to as a bridge-receiving cavity, and each begins at a point intermediate

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the top and bottom of the top wall 32 and extends downwardly a short distance which does not carry it all the way to the bottom margin of the wall 32. The width of each cavity 40, however, is sufficient to carry it across the flat web 35 and significantly into the sloping side walls 36 of the buttress rib.

The portion of the locking flap outside or above the bridge-receiving cavity 38 may be referred to as a bridge 42, and is relatively flat, lying in the same general plane as the rest of the locking flap. The portion of the top wall buttress rib outside or below the bridge-receiving cavity 40 may also be referred to as a bridge 44, and is somewhat curved or inwardly protruding because of following the inward curve of the buttress rib out of the general plane of the rest of the front cover wall. The two bridges 42, 44 of each portion of the latch means are adapted to be received within the bridge-receiving cavity of the other portion so that the bridges encounter each other with a laterally adjacent engagement to latch the top or lid 14 to the locking flap 18. In the closed or latched position, the inwardly protruding bridge 44 latches beneath the relatively flat bridge 42; that is, the flat bridge 42 of the resilient flap is urged outwardly into the cavity 40.

While the modified embodiment illustrated in FIGS. 6 and 7 comprises the above described structure identified by similar reference numerals with the addition of a prime mark ('), the preferred embodiment illustrated in FIGS. 1-5 may further include detent means for securing the front wall of the cover against outward flexing to preclude inadvertent unlatching of the carton. The detent means includes a protrusion 46 on each of the two buttress ribs 34 on the front of the wall 32 of the top 14. Each such protrusion, as best seen in FIG. 4, may be integrally molded with the bottom of each rib 34 to extend downwardly in depending fashion below the bottom plane of the wall 32 of the top 14. The detent means further includes a mating aperture 48 at the base or hinge edge of the locking flap 18. These apertures, as seen from the drawings, may conveniently be formed as the lower parts of the bridge-receiving cavities 38 to secure the detents 46 inside the upper margin of the front portion of the upstanding wall 28 of the carton bottom 12.

As seen from FIG. 5, it will be clear that the protrusion 46 passes through the mating aperture 48 when the container is closed to prevent the mid-portion of the front wall 32 of the top 14 from swinging or flexing outwardly beyond the lateral boundaries of the more rigid upstanding wall 28 of the pocketed bottom 12. The locking flap 18 is resiliently hinged at 20 in a manner which normally tends to swing the flap 18 outwardly against the inside of the wall 32 of the top. It will be clear that the detent means comprising cooperating protrusions and apertures may be formed with buttress ribs other than the two which contain the latch means if such are provided on the front wall of the cover with mating ribs at corresponding places on the locking flap to allow engagement of the bridge means; likewise, it will be clear that, depending upon the size and shape of the container, a larger or fewer number of latch means and a larger or fewer number of detent means may be provided either in the same or different buttress ribs.

In use, when the container 10 has been filled with eggs, the locking flap 18 is folded inwardly and the top 14 is swung thereover to a closed position wherein the top wall 32 and bottom wall 28 come together. As the container is closed, the protrusion 46 of the detent means wedges in the aperture 48 behind the upper margin of the bottom front wall where the flap 18 is hinged, and thus retains the front of the top wall 32 inwardly. This insures that the bridges 42 and 44 will interlock, because the inherent resiliency of the flap hinge 20 urges the inwardly protruding bridge 44 of the top into the bridge-receiving cavity 38 of the flap 18 attached to the bottom, and the bridge 42 of the flap into the larger cavity 40 of the top. As

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the two bridges of each locking means thus overlap, the top 14 is secured against opening, and the container is ready for packing in shipping crates.

Upon receipt of the filled container by the consumer, the container of this invention is easily unlocked by manually depressing the bridges 42 through the cavities 40 only slightly inwardly while lifting the top 14 slightly outwardly and upwardly to expose the contents of the container.

It will be noted that the locking flap 18 is shown as an essentially planar member parallel to the line of the upper rim of the front wall 28 of the carton bottom. As seen in FIGS. 5 and 7, the buttress rib on the cover which prevents the flap bridge 42, 42' from extending clear through to the outside of the cover front wall also prevents the flap 18 from lying completely flat against the inside of the cover front wall. Since the latch means are located between egg pockets, the flap may be flexed outwardly into contact with the inside of the cover front wall by eggs in the pockets in the areas between and beyond the latch means. Aside from providing an egg cushioning feature, this further insures against accidental unlatching. If desired, of course, such flap flexing may be anticipated in design by providing inwardly depressed contours in the nature of vertical nesting buttress ribs on the flap in the areas of the latch means.

Thus, a molded pulp container has been disclosed which provides an extremely efficient latching means which is inexpensive to manufacture according to current pulp molding processes, and which may be readily adapted to current carton closing machinery. Moreover, the latching means, whether with or without the latch securing detent means, is susceptible of quick and easy opening by the consumer, and the possibility of egg breakage is minimized because no significant inward motion of any member is required for unlatching. Finally, the extreme simplicity of the latch means of this invention is strictly confined to a single thickness of pulp material within the normal contours of the container, and is thus adapted for inexpensive manufacture not requiring formation of thickened, critically dimensioned lugs or protrusions.

While the above described embodiments constitute preferred modes of carrying out this invention, other modifications and equivalents may be resorted to within the scope of the actual invention, which is claimed as follows.

What is claimed is:

1. A molded pulp container comprising a pair of members, at least one of which has a wall formed thereon, forming a bottom and a closable top, locking flap means attached to the other member and designed to be received generally against and inside the opposed wall of the one member when the pair of members are in a closed position, means urging the flap means against the inside of the opposed wall when the pair of members are in a closed position, latch means comprising two portions, one on the locking flap means and the other on the opposed wall of the one member, each portion including a bridge and a bridge-receiving cavity vertically adjacent each other, the bridge on the opposed wall protruding inwardly of the container and the bridge on the locking flap means being formed so as not to protrude outwardly so that the bridge of each portion is received within the cavity of the other portion whereby the bridges engage to latch the pair of members in the closed position.
2. A molded pulp container comprising a pair of members, at least one of which has a wall formed thereon, forming a bottom and a closable top, locking flap means attached to the other member and designed to be received generally against and inside the opposed wall of the one member when the pair of members are in a closed position, means urging the flap means against the inside of the opposed wall when the pair of members are in a closed position, a buttress rib on the opposed wall of the one member, latch means comprising two portions, one on the locking flap means and the other on the buttress

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rib, each portion including a bridge and a bridge-receiving cavity vertically adjacent each other so that the bridge of each portion is received within the cavity of the other portion whereby the bridges engage to latch the pair of members in the closed position.

3. A molded pulp container as in claim 2 wherein the bridge-receiving cavity on at least the buttress rib of the wall comprises an opening extending entirely through the wall whereby the bridge of the locking flap means may be manually depressed inwardly to unlatch the container.

4. A molded pulp container comprising a pair of members, at least one of which has a wall formed thereon, forming a bottom and a closable top, locking flap means attached to the other member and designed to be received generally against and inside the opposed wall of the one member when the pair of members are in a closed position, means urging the flap means against the inside of the opposed wall when the pair of members are in a closed position, detent means for securing the opposed wall of the one member adjacent the locking flap means when the pair of members are in the closed position, latch means comprising two portions, one on the locking flap means and the other on the opposed wall of the one member, each portion including a bridge and a bridge-receiving cavity vertically adjacent each other, the bridge on the opposed wall protruding inwardly of the container and the bridge on the locking flap means being formed so as not to protrude outwardly so that the bridge of each portion is received within the cavity of the other portion whereby the bridges engage to latch the pair of members in the closed position.

5. A molded pulp container of generally similar thickness throughout comprising a pair of members, at least one of which has a wall formed thereon, forming a bottom and a closable top, locking flap means attached to the other member and designed to be received generally against and inside the opposed wall of the one member when the pair of members are in a closed positions, means urging the flap means against the inside of the opposed wall when the pair of members are in a closed position, detent means for securing the opposed wall of the one member adjacent the locking flap means when the pair of members are in the closed position, an inwardly extending buttress rib on the opposed wall of the one member, latch means comprising two portions, one on the locking flap means and the other on the buttress rib, each portion including a bridge and a bridge-receiving cavity vertically adjacent each other so that the bridge of each portion is received within the cavity of the other portion whereby the bridges engage to latch the pair of members in the closed position.

6. A molded pulp container as in claim 5 wherein the detent means comprises a protrusion on the buttress rib of the wall and a mating aperture formed as part of the bridge-receiving cavity of the locking flap means.

7. A molded pulp container comprising a bottom member including upstanding front and rear walls and rib means connected between the walls to define a plurality of article receiving pockets as well as impart rigidity to the walls, a cover member including depending front and rear walls, the lower edge of the cover member rear wall and

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the upper edge of the bottom member rear wall being integrally hinged together, a locking flap integrally hinged to the upper edge of the bottom member front wall and designed to be received generally against and inside the cover member front wall when the cover member is in the closed position, latch means comprising a bridge-receiving cavity in the locking flap and a vertically adjacent bridge formed on the locking flap, so as not to protrude outwardly of the general plane thereof, a bridge-receiving aperture and a vertically adjacent bridge formed on the cover member front wall, the bridge-receiving aperture being adapted to receive the locking flap bridge when the cover member is in the closed position, the cover member bridge protruding inwardly of the cover member front wall to be received by the locking flap cavity and beneath the locking flap bridge when the cover member is in the closed position whereby the bridges engage each other to latch the cover member in the closed position and the cover member aperture permits manual inward depression of the locking flap bridge to unlatch the container.

8. A molded pulp container as in claim 7 wherein the locking flap bridge-receiving cavity comprises an opening extending entirely through the locking flap.

9. A molded pulp container as in claim 7 wherein the locking edge of the locking flap bridge lies essentially in the general plane of the locking flap and parallel with the locking flap hinge.

10. A molded pulp container as in claim 7 wherein the width of the locking flap is smaller than the height of the cover member front wall, and at least the cover member rear wall includes vertically disposed buttress ribs.

11. A molded pulp container as in claim 7 wherein the lower edge of the cover member front wall is adapted to overlie the locking flap hinge when the cover member is in the closed position.

12. A molded pulp container as in claim 11 wherein the lower edge of the cover member front wall includes a depending detent protrusion and the locking flap includes a cooperating detent cavity adjacent its hinge to secure the cover member front wall against outward flexing and adjacent the locking flap when the cover member is in the closed position.

13. A molded pulp container as in claim 12 wherein the locking flap bridge-receiving cavity and the locking flap detent cavity are formed as parts of a single opening extending entirely through the locking flap, and the cover member bridge and the cover member detent protrusion are part of a single inwardly and downwardly extending formation.

References Cited by the Examiner

UNITED STATES PATENTS

55	2,578,739	12/51	Randall	229—2.5
	2,843,304	7/58	Reifers	229—45
	2,974,842	3/61	Reifers	229—2.5
	3,144,973	8/64	Heintzelman	229—2.5

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