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LATCH ARRANGEMENT FOR EGG CARTONS

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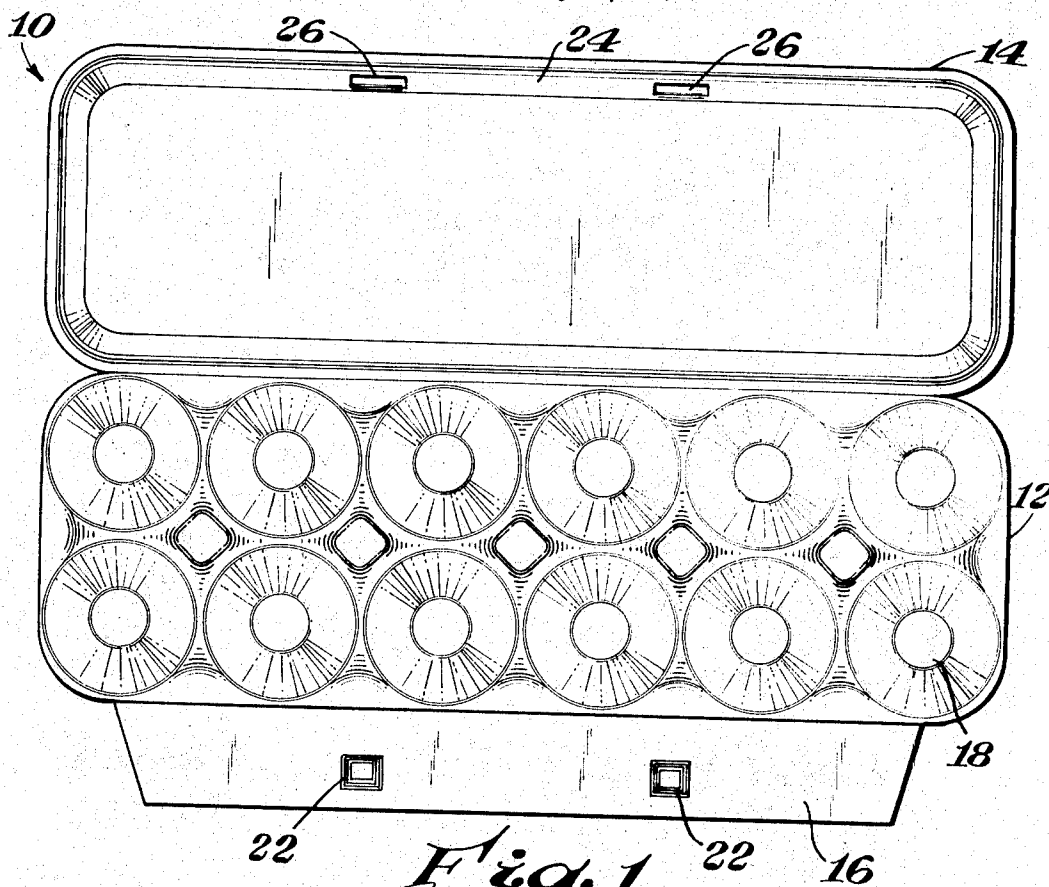


Fig. 1

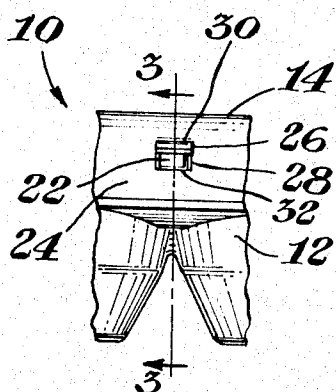


Fig. 2

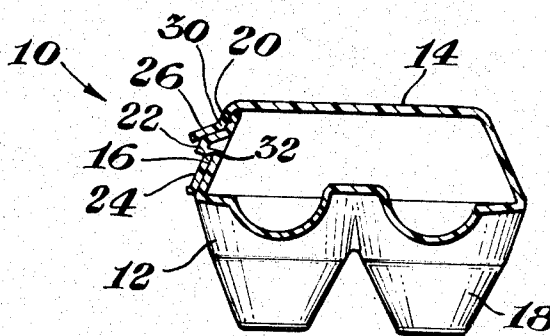


Fig. 3

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LATCH ARRANGEMENT FOR EGG CARTONS
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ABSTRACT OF THE DISCLOSURE

This invention concerns a latch arrangement for an egg carton having a tray, a lid, and a front flap, the front flap and lid preferably being hingedly connected to opposite sides of the tray. The latch arrangement includes lugs protruding from the outer surface of the front flap, and pivotal window panels cut within the front wall of the lid to provide apertures closed or partially closed by the window panels and matable with the lugs. The carton is secured shut by closing the lid over the tray and front flap and inserting the lugs on the front flap through the apertures in the lid.

A basic latch arrangement often employed by prior egg cartons generally includes a front flap extending from the tray of the carton and having lugs protruding from the outer surface thereof, and apertures defined in the lid of the carton through which the lugs can extend to lock the lid to the tray. While this type latch arrangement has received wide acceptance in the market, it can cause fabricating problems in the construction of the carton where the apertures are cut away from the lid. One problem is that when cutting the apertures, the resulting scrap chips comprising the cut away portion can possibly cause clogging of the fabricating apparatus. Even if clogging does not occur, the scrap chips are generally considered a nuisance and must be swept up or otherwise disposed of such that extra time and expense is incurred in the fabricating operation.

Accordingly, it is an object of the present invention to provide an improved latch arrangement for an egg carton which can be fabricated with less likelihood of clogging of the fabricating apparatus and which presents less scrap disposal problems.

Another object of the present invention is to provide an improved latch arrangement for an egg carton that can more positively lock the tray and lid portions of the carton.

Briefly then, the invention contemplates a latch arrangement for an egg carton having a tray, a lid, and a front flap, the front flap and lid preferably being hingedly connected to opposite sides of the tray. Lugs project from the outer surface of the front flap. The lid contains pivotal window panels providing apertures through which the lugs protrude to lock the carton shut. The window panels can be scored, creased or otherwise hinged at their pivotal or joining portions with the lid so that the ease of insertion of the lugs through the initially closed apertures is better facilitated. Alternately, non-scored or non-creased window panels can be employed to exert resilient pressure on the inserted lugs and thereby more positively engage the lugs and the defining edges of the apertures as will be explained more fully hereinafter. The window panel is advantageously formed from material that would often constitute scrap in the fabrication of other prior art cartons and is therefore an inexpensive feature. Furthermore, by utilizing this scrap material to form the window panel, scrap disposal and apparatus clogging problems are lessened.

Yet additional objects and advantages of the present invention will become even more apparent in and by

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the ensuing description taken in conjunction with the accompanying drawings in which wheresoever possible like characters of reference designate corresponding materials and parts throughout the several views thereof in which:

FIGURE 1 is a plan view of an open egg carton employing a latch arrangement constructed in accordance with the principles of the present invention;

FIGURE 2 is a fragmentary front elevational view thereof as closed; and

FIGURE 3 is a cross-sectional view thereof taken along reference line 3—3 of FIGURE 2.

Referring now more particularly to the drawings, there is shown an egg carton 10 which is preferably pressure formed from a one-piece sheet material such as expanded polystyrene plastic. The carton 10 basically comprises a tray or base 12 having a plurality of egg cells 18 formed therein (one dozen), a cover or lid 14 and a front flap 16, the lid 14 and flap 16 preferably being hingedly connected to opposite sides of tray 12.

The lid 14 includes a front wall 24 containing window panels 26 that pivot or bend outwardly to provide openings or apertures 28. Matable with apertures 28 are lugs 22 projecting from the outer surface 20 of flap 16 as most clearly illustrated in FIGURE 3. Carton 10 is thus locked shut by closing lid 14 over the tray 12 and front flap 16, the lugs 22 on front flap 16 being inserted through apertures 28 in lid 14.

The pivotal window panels 26 closing apertures 28 can be formed most advantageously by a simple cutting or stamping action through lid 14, and are preferably cut to furnish a generally three-sided rectangular configuration. The precise configuration, however, can vary considerably provided the apertures 28 created are of sufficient dimension to allow lugs 22 to pass therethrough. Window panel 26, then, can assume a variety of forms such as generally circular, U-shaped or even V-shaped configurations. Also, window panels 26 can be scored or creased along their joining portions with front wall 24 to provide a smoother hinging or pivoting action therewith. Thus, as illustrated in FIGURES 2 and 3, the window panel 26 includes a score line 30 along its upper end to provide a relatively smooth working hinge, and consequently easier insertion of lug 22 through the initially closed aperture 28.

Often, however, the materials applicable to form lid 14 crease naturally when bent through an angle like that required of window panels 26 when inserting lugs 22 through apertures 28. For these lids, then, rather than programming a deliberate scoring or creasing step during the fabricating process, the natural hinge line, formed upon the initial bending back and creasing of window panel 26, could be deemed sufficient.

Other suitable lid materials can endure the normal bending incurred by window panel 26 without substantial creasing. For example, a lid of polyvinyl chloride sheet or even polystyrene sheet can withstand considerable bending and especially so when flexibility inducing plasticizers have been added to their compositions. Here, like carton 10, scoring or creasing can provide the desired hinge line. Alternatively, however, the window panels can be left non-scored or non-creased. In this arrangement, because the window panels have inherent resiliency, they attempt to return to their original position closing the apertures and consequently exert pressure against the lugs extending through the apertures. For example, the window panels 26 joined to the front wall 24 at their upper ends exert a generally downward pressure against the lugs 22. Since the window panels 26 are integral with the lid 14, this downward pressure, in turn, urges the lid 14 upwardly against the lugs 22 inserted through the apertures 28 causing a tight engagement between the underside

of the lugs and lower edges 32 of apertures 28 in carton 10 to securely lock lid 14 to tray 12.

In the above latch arrangement it can be readily seen that the benefits gained do not require the window panel to close the entire extent of the apertures, while, of course, obtaining the benefits relating to scrap disposal and clogging do, as was previously discussed. Conceivably where tapered lugs are employed it might be desired to have quite short panels such that the small or tapered end of each lug can initially enter the aperture without disturbing the window panel. Here, as the lug is further extended through the aperture, the gradually increasing peripheral dimensions thereof causes engagement with and forces outwardly the window panels creating the desired generally downward pressure for more positive locking.

It is to be understood, of course, that the above described carton 10 is but a preferred carton design and that the invention is applicable to a broad array of egg cartons having the basic hingedly connected tray, lid, and front flap arrangement as described in carton 10 above. An egg carton having such a tray, lid and front flap arrangement is that shown in some detail in U.S. Patent No. 3,326,443, the construction of which, for example, could be readily adapted to the present invention when modified to follow the principles thereof.

Although this invention has been described in particularity as regards a polystyrene foam egg carton and to a lesser extent to such a carton employing a lid constructed of a non-expanded plastic, it should be apparent that other materials capable of use in constructing egg cartons are known and available and can be employed to practice the principles of the present invention.

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention. Such changes can be in other structures and materials which serve to achieve the principles of this invention.

What is claimed is:

1. An egg carton having a tray, a lid, and a front flap, the lid and front flap hingedly connected to opposite sides of the tray, at least one aperture defined in said lid, a lug protruding outwardly from said front flap and extending through said aperture to secure the lid to the tray, wherein the improvement comprises having a window panel pivotally joined along a portion of said lid and at least partially closing said aperture.
2. The egg carton of claim 1 wherein said carton is formed of polystyrene foam.
3. The egg carton of claim 1 wherein said lid is formed of a non-expanded thermoplastic material.
4. The egg carton of claim 1 wherein said window panel is scored along the portion thereof joined to said lid.
5. The egg carton of claim 1 wherein said window panel is creased along the portion thereof joined to said lid.
6. The egg carton of claim 1 wherein said window panel closes the entire aperture.
7. The egg carton of claim 1 wherein said lug and an edge defining a portion of said aperture are tightly engaged.
8. The egg carton of claim 7 wherein the underside of said lug and the lower edge defining said aperture are tightly engaged.

References Cited

UNITED STATES PATENTS

2,711,282	6/1955	D'Esposito	229—45
2,839,236	6/1958	Dunning	229—45
2,970,734	2/1961	Heath	229—45 X
3,223,306	12/1965	Alsman	229—45 X
3,259,294	7/1966	Hartmann	229—2.5
3,285,491	11/1966	Bessett	229—2.5
3,289,911	12/1966	Boyd et al.	229—2.5
3,326,443	6/1967	Burkett	229—2.5

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