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W. H. INMAN

2,340,753

NONREFILLABLE BOX

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Fig. 1

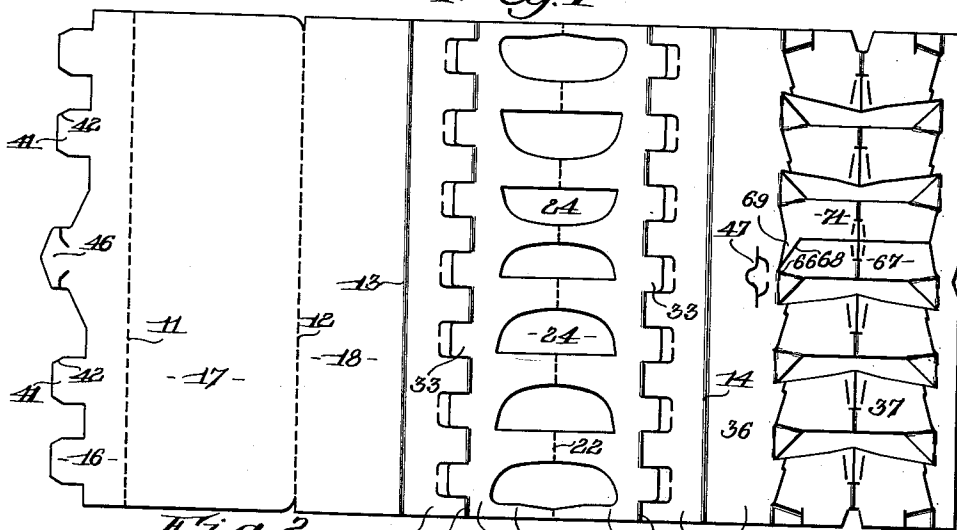


Fig. 2

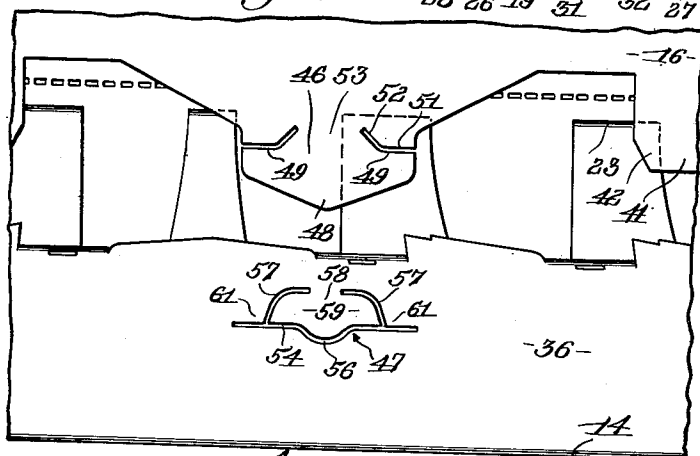


Fig. 5

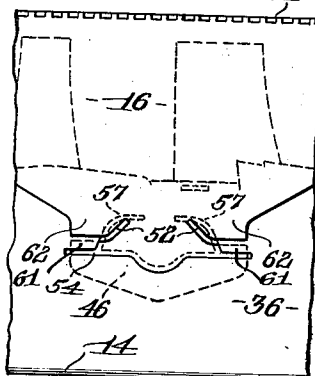
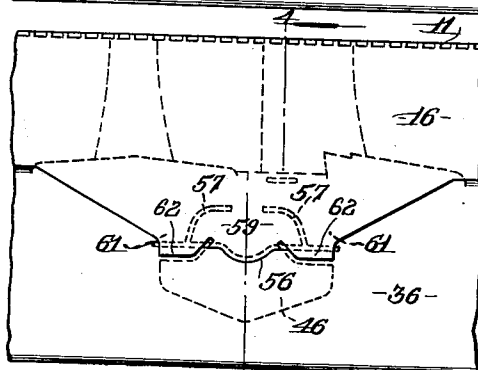


Fig. 3

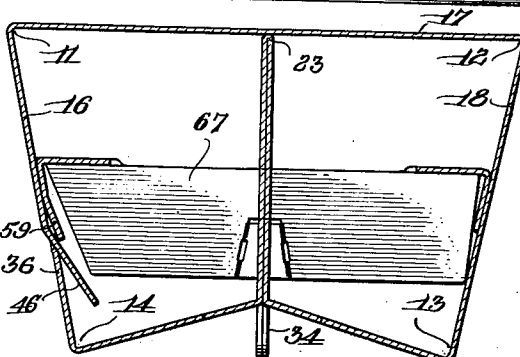


Fig. 4

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2,340,753

NONREFILLABLE BOX

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3 Claims. (Cl. 229—45)

My invention relates to boxes or cartons and although the invention is primarily concerned with boxes for the packaging of eggs, the structure of my invention may be used in connection with boxes for other purposes.

In connection with the sale of certain articles, it is desirable that the box or carton be arranged so that it must be torn or broken when opened so that it can be refilled. This is particularly the case where the box or carton, in which the articles are packaged, bears a trade-mark or other identification denoting the manufacturer or producer.

An object of my invention is to provide a box or carton, particularly suited for the packaging of eggs, which when once filled and closed can not be reopened without tearing portions of the box or carton or without damaging or disfiguring the box to an extent such as to render it unusable.

Other objects and advantages of my invention will be particularly pointed out in the claims, and will be apparent from the following description, when taken in connection with the following drawing, in which:

Fig. 1 is a view of a blank cut and scored in accordance with my invention preparatory to folding it into box form;

Fig. 2 is a front elevation of the box showing the cover in a partly closed position preparatory to closing and locking the cover of the box;

Fig. 3 is a front elevation similar to Fig. 2 with the cover of the box in a closed and locked position;

Fig. 4 is a sectional view taken substantially on the line 4—4 of Fig. 3; and

Fig. 5 is a front elevation similar to Fig. 3 showing the position of the parts when an attempt is made to open the box.

The blank from which the box or carton of my invention is made may be of cardboard, pasteboard, or other suitable sheet material. While I will describe my invention as applied to a cell type box or carton for the packaging of eggs, it will be appreciated that the invention may be applied to boxes for other purposes.

The blank (Fig. 1) which is preferably rectangular in shape is divided by score or perforated lines 11, 12, 13, and 14, the distance between score or perforated lines being properly determined in accordance with the desired dimensions of the box. The sections of the blank defined by the score lines may be termed a flap section 16, a top wall section 17, a rear wall section 18, a longitudinal partition and bottom forming section

19, and a front wall and transverse partition forming section 21.

The bottom and longitudinal partition forming section 19 may be provided with a central interrupted score or line of perforations 22 adapted to form the top edge of the longitudinal partition, as shown at 23, in Figs. 2 and 4. The section 19 may also be provided with cut outs 24 properly shaped for the reception of the transverse partitions in a manner well known in the art of egg boxes.

The bottom and longitudinal partition forming section 19 may also be provided with interrupted scores or lines of perforations 26 and 27 defining two bottom wall sections 28 and 29 and two longitudinal partition sections 31 and 32. For the purpose of supporting the bottom wall sections 28 and 29 in angular relation to each other and thus providing a cushion bottom for the box, tabs 33 may be cut out of the bottom wall sections 28 and 29 which when the blank is folded into box form assume the position shown at 34 in Fig. 4.

The front and transverse partition forming section 21 is divided by properly scoring the blank, as shown in Fig. 1 into a front wall section 36 and a plurality of transverse partitions 37. While the transverse partitions may be made in any suitable manner, preferably the blank is cut and scored so as to provide transverse partitions of the character shown and described in my co-pending application on which Patent No. 2,277,327 was granted March 24, 1942.

The front flap section 16 is provided with a plurality of guide tabs or tongues 41 which extend outward along the edge of the flap section. Preferably the ends of the tongues are beveled, as shown at 42, so that the tongues may be readily slipped down on the inside of the front wall 36 so as to lie between the transverse partitions. It will be appreciated that when the transverse partitions are folded down into locking relation with the longitudinal partition formed by the sections 31 and 32, as shown in Fig. 4, that spaces will be provided between the transverse partitions into which the guide tabs or tongues 41 may be entered.

The structural features of the box thus far described are either known or shown in the above mentioned patent. The present invention is concerned primarily with the means for locking the cover in closed position so as to make necessary the tearing of the box to open it and thus to prevent reuse of the box. The means for locking the egg box or carton comprises a tab or tongue 46, formed integrally with the front flap section

16, which is adapted to cooperate with and lock in the margins of a recess, generally indicated by the numeral 47, located in the front wall section 21. The tab 46 has, preferably, a somewhat pointed end, as shown at 48, to facilitate the entry of the tab in the recess 47. Extending inward from the sides of the tab 46 are a pair of slits or incisions 49 each of which has an inwardly extending part 51 and an inwardly and upwardly extending part 52. Between the inner ends of the incisions 49 is an unsevered part 53.

The recess 47 comprises a substantially longitudinally extending slit or incision 54 which is preferably just slightly longer than the width of the tab 46. The central part of the slit is curved downward, as indicated at 56, to facilitate entry of the pointed end 48 of the tab. Spaced from the ends of the slit 54 are a pair of slits or incisions 57. These incisions 57 extend upward and inward toward each other and are separated by an unsevered part 58. The slit 54, together with the incisions 57, form a flap or gate 59 which may be readily pressed inward when the tab 46 is being entered in the recess.

After the blank of Fig. 1 has been folded into box or carton form, and the cells provided by the longitudinal and transverse partitions are filled with eggs, the cover is moved toward a closed position and the tab 46 inserted in the slit 54. During such insertion the flap or gate 59 is pressed inward. As the tab is moved into the recess, and the flap 59 pressed inward, the portions 61 are also pressed inward so as to permit the tab to be slid between the adjacent margins of the slit 54. As soon as the tab is inserted in the recess sufficiently far so that the incisions 49 lie below the slit 54, the resiliency of the material causes the portions 61 to snap outward. The tab is then locked in the recess with the parts 62 overlying the ends of the slit 54 and the major portion of the tab 46 lying on the inside of the front wall, as shown in Fig. 3.

If an attempt is made to withdraw the tab from the recess by pulling upward on the cover or tab, the parts will assume the position shown in Fig. 5 with the sides of the tab locked beneath the parts 61 and the margins of the incisions 49 engaging and locking with the margins of the incisions 57. Any attempt to pull the tab out of the recess will result in distortion of the tab or tearing the tab along a line joining the ends of the incisions 49, or along the unsevered portion 53.

One of the important features of the invention lies in the fact that the incisions 49 curve inward and upward and the incisions 57 curve upward and inward. This arrangement tends to bring the locking action of the engagement of the margins of these slits well inwardly of the outer edges of the tab, as shown in Fig. 5. This arrangement makes it extremely difficult to unlock the tab by inserting a knife or other instrument into the recess.

Another feature of importance in connection with the locking arrangement of my invention lies in the fact that the flap or gate 59 is not placed in transverse alignment with one of the cells of the box. If this were done, it would make more difficult the insertion of the tab in the recess since the gate or flap 59 could not readily be pressed inward because it would be in engagement with an egg in the adjacent cell. Thus instead of placing the gate 59 in transverse alignment with one of the cells, it is placed in trans-

verse alignment with one of the transverse partitions, as shown at 66 in Fig. 1. Moreover, the transverse partition 67 is relieved by cutting the edge 68 at an increased inclination as compared with the other transverse partitions. To avoid the necessity of stripping scraps from the blank, the material 69, resulting from the increased angularity of the line of incision 68, may be left on the adjacent transverse partition 71.

In the drawing I have shown only a single locking tab and recess. It will be appreciated, however, that two or more locking tabs and recesses may be employed spaced longitudinally of the box. When the box or carton has once been filled and the locking tab positioned in the recess, it is extremely difficult to open the box without tearing the tab along the unsevered line 53 or otherwise tearing the box as, for example, along the score or line of perforations 11. Thus the manufacturer or producer, who supplies the boxes suitably marked with his name and trade-mark, is protected against the box being reused.

While I have shown and described a particular egg box or carton structure, it will be appreciated that the principles of the locking feature of my invention may be employed in connection with other types of egg boxes or cartons. While I have shown and described a preferred form of my invention, it will be apparent that various modifications may be made, particularly in the form and relation of parts, without departing from the spirit of my invention as set forth in the appended claims.

I claim:

1. A non-refillable box of paper board material comprising a blank cut, scored, and folded to form a box having a top wall, a wall section, and a flap section attached to one of said walls, one of said sections having a recess and the other of said sections having a tab which when interlocked with the margins of the recess secures the box against access thereto, said tab including a pair of incisions extending inwardly from opposite lateral edges of the tab and then obliquely upwardly away from the extremity of the tab, and said recess including a slit and incisions extending upwardly and inwardly from said slit to form a part which may be depressed inwardly to enable the tab to be inserted in said recess with portions of the margins of said tab adjacent said recess underlying portions of the margins of the incisions associated with said recess.

2. A non-refillable box of paper board material comprising a blank cut, scored, and folded to form a box having a top wall, a wall section, and a flap section attached to one of said walls, one of said sections having a recess and the other of said sections having a tab which when interlocked with the margins of the recess secures the box against access thereto, said tab including an unsevered portion by which it is joined to the associated section with incisions on each side of the tab extending inward and upward toward the center of the tab, and said recess comprising a slit extending longitudinally of the section in which it is located, a pair of incisions extending from points spaced from the ends of said slit upward and inward to form a flap, said tab being adapted to be inserted through said slit while said flap is pressed inwardly to enable portions of the tab to be lodged behind portions of the margins of said slit, said incisions in said tab being relatively narrow so that the material of said tab immediately above said incisions comes closely adjacent to the material thereof immediately

below said incisions and covers the material of the recessed section closely adjacent the recess, to prevent access thereto for causing inward deflection thereof.

3. A non-releasable interlock for two sections of fibrous carton stock, said interlock comprising in the first section an incision extending in a general direction laterally with respect to the direction of engaging movement of the two sections relative to each other, and two cuts extending from one side of said incision, at points spaced materially inwardly from the ends thereof, in a general direction converging toward each other, the edges of said two cuts forming locking shoulders, the interlock further comprising in the second section a tongue having a width less than the length of said incision and greater than the distance between said two cuts where they join said incision, said tongue also having two slits extending laterally inwardly from two opposite lateral edges of said tongue toward each other and leaving between them an unsevered portion of a width less than the distance between said two cuts where they join said incision, said slits partially subdividing said tongue into a terminal

5 portion and a main portion, said terminal portion being adapted to be thrust through said incision in said first section and to underlie the material of said first section on the side of said incision remote from said two cuts while said main portion of said tongue overlies the material of said first section on the side of said incision where said two cuts are located and covers the material adjacent the junctions of said two cuts with said 10 incision, to impede access to and inward deflection of said material adjacent said junctions, so that when it is attempted to slide said second section of carton stock over the first section in a direction to withdraw said tongue from said incision, the lateral corners of the terminal portion 15 of said tongue adjacent said slits will remain in underlying relation to the material of the first section and slide beneath that part of said material which is laterally outside of said cuts and on the same side of said incision as said cuts, until the edges of said terminal portion formed by said slits come into contact with and are stopped by the locking shoulders formed by said cuts.

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