June 2, 1942. R. G. THOMPSON 2,285,067

RECLOSURE CARTON

Filed Jan. 2, 1940 2 Sheets-Sheet 1

Fig. 1

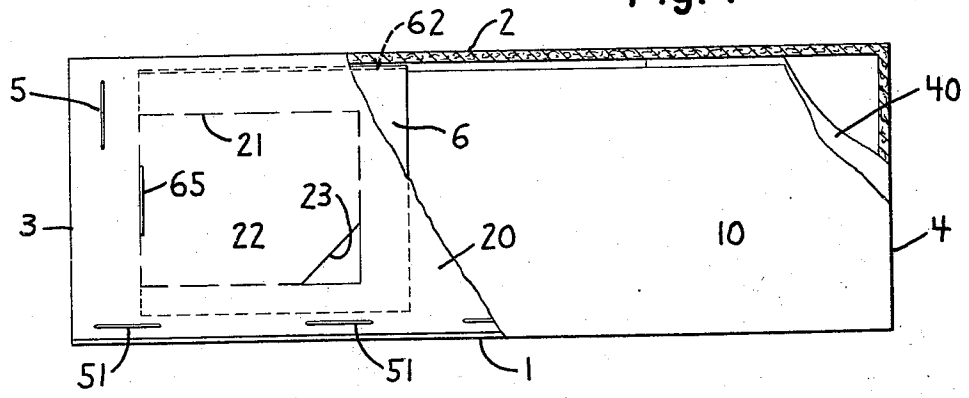
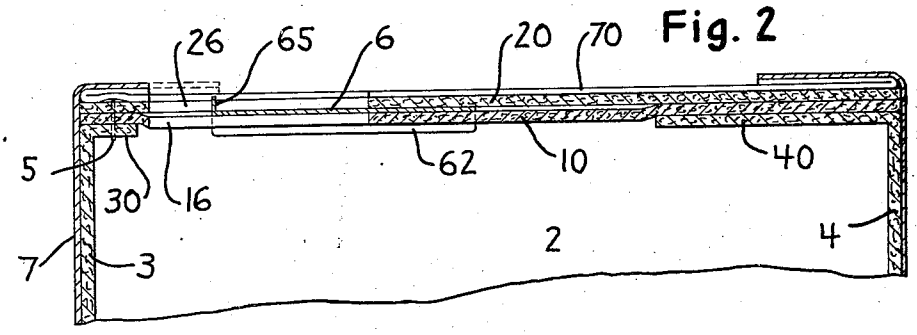


Fig. 2



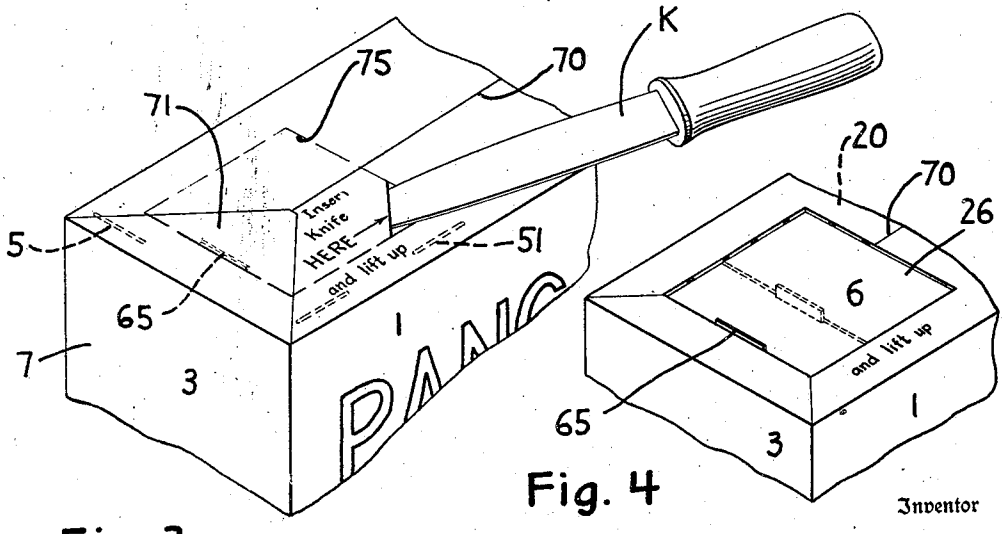


Fig. 3

Fig. 4

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Filed Jan. 2, 1940 2 Sheets-Sheet 2

Fig. 5

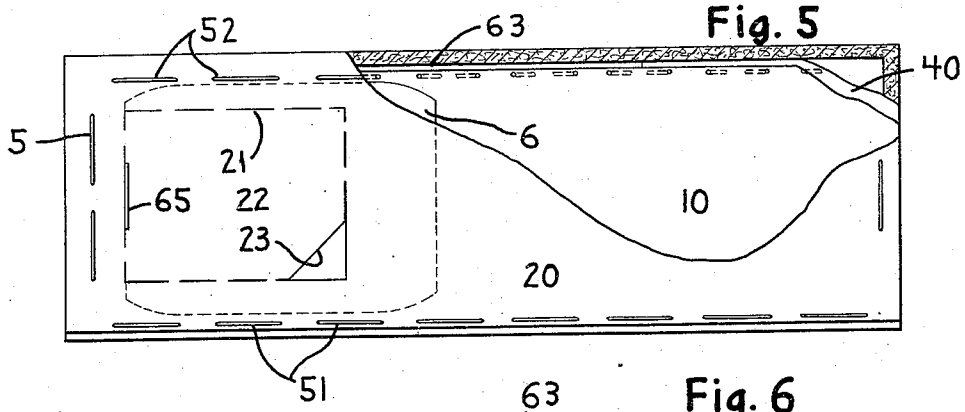


Fig. 6

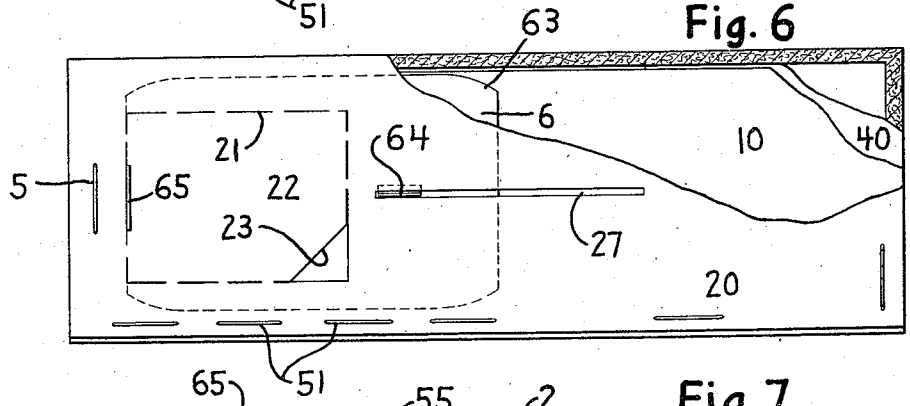
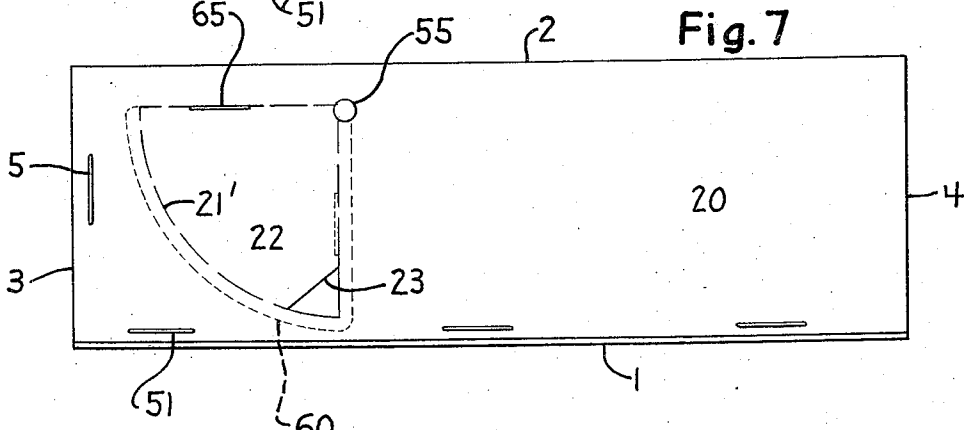


Fig. 7



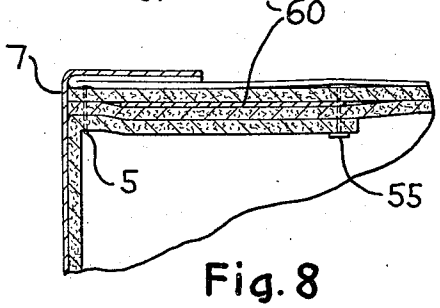


Fig. 8

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Patented June 2, 1942 2,285,067

UNITED STATES PATENT OFFICE

2,285,067

RECLOSURE CARTON

Robert G. Thompson, Seattle, Wash.

Application January 2, 1940, Serial No. 312,040

7 Claims. (Cl. 229—17)

My invention relates to cartons of the same general type as are disclosed in my copending application Serial No. 297,826, filed October 4, 1939, and is in part divided from that application.

In the forms principally disclosed in that application the top of the carton had a large opening formed in it, and, whilst that opening was closed by a sliding closure plate, there still remained a depression in the top corresponding to the opening in the top flap, above the slide. Since cartons of this type are normally formed of reasonably heavy fiber board, such an opening constituted an interruption to the smooth surface, within which packages would tend to catch as they were packed in shipping cartons or piled on shelves, and such a depression afforded a place of lodgement for dirt. Notwithstanding that it was normally intended that such a carton should be enclosed within a wrapper, which wrapper thus served to close over the opening, this did not prove wholly satisfactory, in that the wrapper would be broken open at the opening, since there was nothing in immediate contact with it from below to take the strain of packages piled upon it, perhaps with their points indenting the wrapper in the vicinity of the opening. While the slidable closure plate was close beneath the wrapper, the wrapper was somewhat spaced above the closure plate and stretched reasonably tight, wherefore it was readily punctured by such accidents, and not only was the appearance of the package detracted from, but there was the danger that the slidable closure plate would come open and spill out the contents or at least would afford access of moisture and dirt to the contents through such a break in the wrapper.

It was disclosed in the copending application how such disadvantages might be avoided, in part at least, by leaving in place the piece which was cut out to form the closure, or by restoring it to place, so that the upper surface of the carton became flush throughout, and for such a showing reference is made to Figure 3, for instance, of the drawings of the copending application. This is likewise one of the objects of this invention. However, by reason of the then adopted structure of the slide and associated parts, which was preferred at the time of filing that copending application, certain of the advantages, particularly the advantage of a top surface which is flush throughout, could not be fully realized, and it is an object of the present invention to provide a package, in the nature of such a carton, having reclosure means, and which incorporates such a structure that the top of the carton may be flush throughout, or substantially so, and particularly by reason of the leaving in place of the piece which is eventually torn out to define the opening in the top flap of the carton.

It is a further object to advance the ability to provide a practically flush top surface to the carton by providing the slidable closure with a handle or finger piece that may be simply formed and placed, so that it stands up above the surface of the slide, yet in such a way, and so interengaged with the top flap of the box, that it does not, in the package as it leaves the factory, stand up above the flush top surface of the carton.

In the copending application disclosure was made, particularly in Figure 3, of an arrangement whereby the slide could be maintained positively in closed position during shipment by reason of the nature of the finger piece, and of its interengagement within the opening and between the edge of the opening and the edge of the tear-out closure, and this is one of the major objects of the present invention. It is also an object, by slight revision of the form and arrangement of the finger piece of the slide, to facilitate and advance the above object, and also to facilitate the general assembly of the carton, and to lessen the cost of such assembly, to the end that the entire package costs but little more than the cost of a conventional carton and package.

By reason of the structure adopted for the slide in the copending application it was certainly desirable, and was considered almost essential, to provide an extra flap, hinged at the free edge of the normal underneath flap of the top, to the end that the downwardly directed flange along the corresponding edge of the slide might ride and be guided for free sliding movement without contact with a cut edge of this lower flap. This entailed extra expense in the provision of additional material from which the extra flap may be cut; in the operation of assembling, which cannot then employ standard carton-assembling machines; and in the cost of dies, since standard dies cannot be employed nor readily altered. It is an object of the present invention, by otherwise assembling the parts constituting the top of the carton, to avoid the necessity of departing in any respect from the outline of the conventional carton, yet making it possible to guide the slide as well, and without the likelihood of cocking and sticking, to the final end that the cost of the entire carton and its assembly may be kept to the minimum.

It is also an object to provide various constructions and arrangements, particularly in the assembly of the carton top and of the slide therewith, which will simplify the assembly, and which will simplify the structure and manufacture of the slide itself.

Likewise it is an object of the present inven-

tion to facilitate the making of the slide in various forms, and in particular the principles of the present invention may be readily adapted to a slide which is pivoted for rotation, about a point, in the general plane of the top.

Since it is proposed to leave in place the tear-out closure until the contents of the box are to be used by the ultimate consumer, and since the carton is normally to be wrapped within a wrapper or label, which completely encloses it and the closure, it is a further object to provide means in association with the carton, the tear-out closure, and the cover, which will of necessity, from the manner in which the several parts are assembled, point out the point where the hidden tear-out closure may be engaged, as for instance by a knife point, to be thereby lifted by the user, and torn out, and whereby the wrapper will be properly perforated to afford an opening in registry with the opening through the top of the carton which is provided by the removal of the tear-out closure.

The above is by no means a complete catalog of the objects of the present invention, yet sufficiently illustrates those objects, and such others as are of interest or importance will appear as this specification progresses.

My invention comprises the novel closure, and the novel carton, each in association with the other, and with a wrapper, all as shown in the accompanying drawings, described in this specification, and as will be more particularly defined by the claims.

In the accompanying drawings I have shown the principles of my invention embodied in various illustrative forms.

Figure 1 is a top plan view of the invention, with parts broken away, and with the wrapper omitted, the carton and closure taking a form which at present seems most preferable.

Figure 2 is a longitudinal vertical section through the same, however, with the tear-out closure removed and the slide partly open, and showing the wrapper in place.

Figure 3 is a detail view in perspective, showing the manner of opening the carton, and Figure 4 is a similar view showing the tear-out closure removed.

Figure 5 is a view similar to Figure 1, illustrating a modified arrangement, and Figures 6 and 7 are similar views showing further modifications, the latter figure showing a pivotally mounted slide. Figure 8 is a detail section, similar to Figure 2, illustrating the form shown in Figure 7.

It is one of the advantages of the present invention that the present carton may conveniently be formed by dies which in their outline need differ in no respect from conventional or normal dies for cartons of the same general nature. There are actual or potential apertures formed within this outline, and in the tabs of the top, and one of the tabs may be cut short, but it is a very simple matter to cut away material within the outline of the normal die, much simpler than to expand a normal die in order to extend one of the tabs, for instance, to form an extension flap or the like. To provide an extension beyond the outline of the normal dies requires remaking these large dies, whereas the cutting away of portions of material inside the normal outline merely requires a small additional die. Also, to extend the outline requires additional board stock, whereas the normal outline is most economical of material.

To the above ends the carton is formed with a normal bottom (not shown), and with a top which departs but little from the normal. The carton, again to retain the advantages arising from lack of material departure from conventional cartons, is formed with the usual four sides, and to distinguish them the two wide sides may be termed the front 1 and the back 2, and the narrow sides may be termed the ends 3 and 4. While it is only necessary, for the purposes of this invention, that there be two overlapping tabs forming the top, the conventional carton has four such tabs, one infolded from the top edge of each side, and the carton here illustrated is of that type, the several sides being formed with the tabs 10, 20, 30 and 40, respectively. These tabs are infolded in the normal manner, and may be set up by any suitable carton-assembling machine, preferably one provided with stapling means. The tab 30 may be somewhat shorter than the normal tab, to avoid extension into the area to be occupied by the hole, or, to whatever extent the tab is to extend into this area, it is provided with an aperture registering with the hole. However, the two principal tabs are the tabs 10 and 20. The tab 10 is provided with a hole 16, preferably located near one end of the top, and preferably also of large size, sufficiently large to permit the insertion of a spoon, at least, to lift out and, if need be, to level off, a spoonful of the contents from within the package.

The upper tab 20 is not provided initially with an actual hole. Instead it is perforated, as is indicated at 21, about an area which defines an opening 26, which in the assembled condition registers with the opening 16, but which is left closed by a tear-out closure 22. The points of securement which are left to support the tear-out closure 22 are sufficient, especially when it is considered that the tear-out closure 22 is backed by the slide 6, as will appear hereafter, that the top of the carton will sustain itself under a reasonable force, and remains substantially unbroken and flush.

The thin slide 6, which constitutes the reclosure means after the tear-out closure 22 has been removed, is of such size and shape as will close the opening 26, 16, which is left after the tear-out closure 22 has been removed. It is preferably made of metal, and being interposed between the overlapped tabs 10 and 20, it is guided for sliding movement between these tabs. The manner of its movement and the manner of its guiding will be pointed out hereafter. At this time it is desired only to point out that, in the form shown in Figures 1 to 4 inclusive, the slide is slidable from left to right to open the opening. It is provided with a finger piece or handle, illustrated at 65, which handle is formed merely by flanging upward a slight extension at the closing edge of the slide. The height of this handle 65, when thus upstanding above the slide, is substantially the equivalent of the thickness of the tab 20. It may be a trifle higher, but it substantially corresponds in height to the thickness of this tab.

It is assembled by projecting it through the tab or into engagemet with the tab. Preferably it is projected through the line of perforations 21, which defines the margin of the tear-out closure 22, in such a location that when the handle 65 is thus engaged with the edge of the tear-out closure 22, the slide 6 is in closed position, and, thus interengaged with the tear-out closure, it cannot slide nor move from closed position.

Moreover, the slide 6 is thus sufficiently attached to the tab 20 that the several tabs that constitute the top of the box may be handled as though there were no tear-out closure, and as though there were no slide 6, and the same may be set up in a machine which is provided for the setting up or for the stapling of the cartons. Once the tab 20 is folded down over the tab 10 which it overlaps, there is no possibility of the slide 6 escaping from its set position, and thus located, it backs up the tear-out closure 22 and enables the latter, though weakened with respect to the tab 20, to sustain any reasonable stress that is placed upon it, as in packing or in shipment, or in setting up for display.

It was considered necessary in the copending application to support the free edge of the underlapped tab 10 along the side 2. It is desirable that the tabs 10 and 20 be kept in reasonably close face to face contact, and that they in turn grip the slide with sufficient frictional grip to retain it in a set position; this is even more necessary if the tab 30 be cut short, as it is in the present carton, yet it is undesirable to provide an extension beyond the normal free edge of the underlapped tab 10. Accordingly the free end of the tab 10, in the vicinity of the aperture 16, 26, is suitably held up, as is also the short tab 30, by means such as the staple 5. This staple 5, if it is properly located, as shown in Figure 1, does not in any way interfere with the closing movement of the slide 6, yet by supporting the free end of the tab 10 it serves to sustain the slide 6 in all positions of the latter. As a result it is possible to guide the slide 6 merely by a downwardly directed flange 62, which overhangs the cut free edge of the tab 10. The free edge of the overlapped tab 20 is held down, and the slide 6 is further guided by securing this free edge of the tab 20 to the underlapped tab 10, by suitable means, such as gluing, or, in the preferred arrangement, by means of staples 51.

As has been indicated already, the carton is assembled by applying the slide 6 to the under face of the tab 20, pushing the handle 65 through the line of perforations 21, and then by suitably securing or stapling the tabs in a normal manner. This leaves a smooth, flush top, little if at all interrupted by the handle 65 and the staples 5 and 51. After filling the carton through the bottom, the whole is normally covered with a suitable wrapper, indicated at 7, and this wrapper folds inwardly to a meeting line at 70, across the center of the top of the carton, and is infolded at 71 in a triangular piece that in part overlies the area of the opening. It is preferred that the wrapper 7 be likewise perforated, as indicated at 75, so that when wrapped in the usual way and with the usual machines, the perforations 75 will define an opening which registers with the opening defined by the perforations 21.

However, since the wrapper is continuous over the top of the carton, it is preferred to provide some means whereby the tear-out closure 22 may be readily located, engaged and detached, and lifted out. To this end I prefer to omit a small piece, for instance a triangular corner of the tear-out closure 22, to provide an edge 23, and above the wrapper I place a guide or index line, best seen in Figure 3, which will coincide with the edge 3 and which will enable a knife K to be inserted, just beneath the edge 23, to lift out the tear-out closure 22 and to detach it along the line 21, as also the portion of the wrapper within the perforations 75. The knife will not penetrate into the interior of the carton, since at this time the metal closure 6 is in position where it is engaged by the knife, and the closure 6 thereby prevents the entrance of the knife into the interior of the carton. However, when the tear-out closure 22 is removed the handle 65 is readily engaged, and the slide 6 is then free to move to an open position, guided in the manner already indicated.

The arrangement illustrated in Figure 5 differs from that described principally in that the slide 6 is not provided with any downwardly turned flange, but is guided instead between two rows of staples 51 and 52, or other equivalent securing means that hold together the free edges of the respective flaps 10 and 20, the two spaced-apart lines of staples constituting the edges of a guide. The corners of the slide are preferably rounded somewhat, as indicated at 63, to avoid cocking and sticking. All such staples are readily applied by riveting machines of known design.

In Figure 6 the slide 6 is of the general type illustrated in Figure 5, but the guiding of the slide is accomplished primarily by the line of staples 51, and by an upturned guide 64, slidable in a slot 27 provided in the upper tab 20. The guide 64, like the handle 65, is of no appreciably greater height than the thickness of the tab 20 through which it projects.

The arrangement shown in Figures 7 and 8 contemplates a pivotally mounted slide, which, to distinguish it, may be designated 60. The pivot is formed by a staple or rivet 55, and the slide 60 may be quarter-segmental in form. The line of perforations 21' is correspondingly shaped, as is also the aperture in the lower tab in registry with the potential aperture thus defined.

It will be noted in each of these forms that the opening through the top is large, and in every form it has a straight edge which may be used for leveling of a spoonful of the contents. In every form the slide moves with the application of only a slight force, and is positively guided, so that in the open position it is entirely clear of the opening, and in the closed position the opening is completely closed. The top is substantially flush and smooth throughout, for while there is a minor break where the triangle is cut out from the tear-out closure 22, to define the edge 23, this is so small that the wrapper above it is not appreciably weakened. The distance is so small that the wrapper will sustain without breaking such forces as are likely to be applied to it. Even should the wrapper break at this point, no great damage is done, and there is no possibility of loss of the tear-out closure, and consequent opening of the slide.

It has been necessary, for clearness of illustration, to exaggerate somewhat, especially in the thickness of the walls and tabs of the carton.

While the carton has been described as wrapped in a wrapper, and would normally be so wrapped, it is clear that it is in no sense essential that it be wrapped. Many of the advantages of the invention may be secured without employing a wrapper. The tear-out closure 22 is sufficiently well held in place that it is unlikely to be torn loose accidentally, especially if the triangular cut-out is made small. The description of the carton as wrapped is merely to show how the additional problem and advantage of wrapping may be met and attained, with a carton so constructed, if need be.

The carton thus constructed can be made practically as cheaply as a carton without such a reclosure means. The only additional expense is the negligible expense per unit of the small additional dies for accomplishing the perforating along the line 21 or 21', and the cost of the material and manufacture of the slide itself, which is a minor item. There is no appreciable additional cost in the assembly nor in the setting up of the carton, nor in its original manufacture, nor in the wrapping. The reclosure means does not in any way interfere with the filling and closing, which is done from the opposite end or normal bottom of the carton, nor does it interfere with the packing, shipping and subsequent handling of the cartons, nor is any added cost entailed thereby. The closure is held with slight friction against opening or closing movements. The carton so equipped has been found highly satisfactory for such products as cereals, dry or for cooking, flour, soap flakes or dust, etc.

What I claim as my invention is:

1. A carton having at least two tabs infolded from the upper edges of its sides into, and secured in, overlapped relation, the upper tab being perforated to define a potential opening in the carton's top, closed by a tear-out closure, and the lower tab having a registering opening, a thin slide disposed between the two tabs, of a size and shape to close such opening, in direct contact with and guided only between the two tabs for opening and closing movement across the opening, after removal of the tear-out closure, and means upstanding from the slide, and penetrating the upper tab to engage with the tear-out closure, to hold the slide positively in position to close the opening so long as the tear-out closure remains in place.

2. A carton having at least two tabs infolded from the upper edges of its sides into, and secured in, overlapped relation, the upper tab being perforated to define a potential opening in the carton's top, closed by a tear-out closure, and the lower tab having a registering opening, a thin slide of a size and shape to close said opening, and guided by and between the two tabs for movement across the opening, after removal of the tear-out closure, to open or to close the opening, and a handle flanged upwardly from an edge of the slide, of a height corresponding to the thickness of the upper tab, and initially assembled projecting through the upper tab, at the perforate margin of the opening, and with the slide in closed position, the tear-out closure engaging said handle to prevent movement of the slide from closed position until the tear-out closure is removed.

3. A carton comprising enclosing walls having infolded tabs arranged to overlap to close the top, the topmost tab being perforated to define a potential aperture closed by a tear-out piece, and the underlying tabs being apertured in substantial registry therewith, a slide of thin, relatively stiff material disposed between and in direct contact with the topmost tab and the next lower tab, of a size and shape, and so positioned, as to close said aperture and for sliding movement to open the same, said slide having a finger-piece upstanding to a height substantially equal to the thickness of the topmost tab, and being initially supported for assembly, in aperture-closing position, primarily by insertion of its finger-piece between the adjoining edges of the aperture and the then unremoved tear-out piece, and the slide being held, by reason of such engagement with the tear-out piece, against sliding movement when the slide is restrained, after assembly, against disengagement of the finger-piece, by the engagement of the slide from beneath by the underlying tab.

4. A carton having at least two tabs infolded from the upper edges of its sides into, and secured in, overlapped relation, the overlapped tabs having registering openings, the opening in the top tab being closed by a coplanar tear-out closure of a size and shape to fit closely within the opening, a thin slide of a size and shape somewhat more than sufficient to close said opening, contacting the under side of the top tab and the upper side of the lower tab, and being thereby guided for sliding movement in its own plane between open and closed positions, said slide having an upstanding finger, of a height substantially the same as the thickness of the top tab, engaged, when the slide is in closed position, between an edge of the opening and an edge of the coplanar tear-out closure, such engagement interdicting sliding movement of the slide until the tear-out closure has been removed.

5. A carton having at least two tabs infolded one over the other and secured in such overlapping relation, the outer tab being perforated to define a potential opening, closed by a tear-out closure, and the inner tab having a registering opening, a thin slide of a size and shape to close said opening, and guided between the two tabs for opening and closing movement across the opening, after removal of the tear-out closure, and means upstanding from the slide, and penetrating the outer tab to engage the tear-out closure, the slide being retained positively by such engagement in position to close the opening so long as the tear-out closure remains in place, and being released for opening movement by removal of the tear-out closure.

6. A carton having an upper and a lower tab infolded from their respective upper edges of the carton's sides, into overlapped relation, the tabs having registering segmental openings affording access to the interior, the tabs being secured together along the free edge of the upper tab and at the free edge of the lower tab, adjacent the opening, a thin slide of a size and shape to close the opening, interposed between the tabs and pivoted for swinging movement in its own plane between open and closed positions, a tear-out closure initially substantially filling the opening in the upper tab, and a finger upstanding from the slide, and penetrating the outer tab to engage the tear-out closure, thereby to hold the slide in closed position so long as, but only so long as, the tear-out closure remains in place in the upper tab's opening.

7. A carton, one face whereof is perforated to define a potential opening, closed by a tear-out closure, a second closure element, of a size and shape to close the opening, located and guided beneath the tear-out closure for movement between open and closed positions, and stop means upstanding from one closure, positively engaging a complemental stop means upon the other closure to prevent movement of the movable closure from closed position, said stop means being disengageable by removal of the tear-out closure, and its stop means, after which the movable closure is free to move relative to the opening, between open and closed positions.

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