March 28, 1967 KATSUJI SHIMADA ETAL 3,311,283

CARTON HAVING AN AUTOMATICALLY OPENABLE COVER

Filed Nov. 30, 1964 2 Sheets-Sheet 1

FIG.1

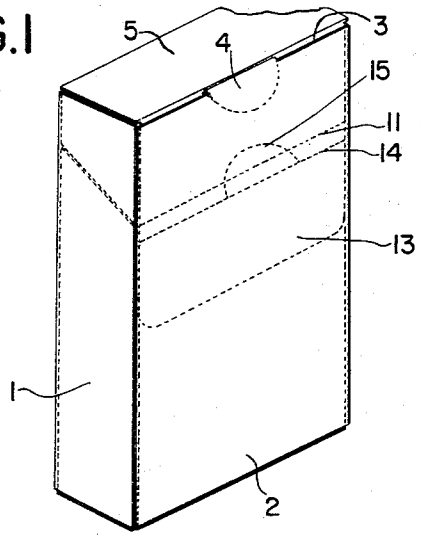


FIG.2

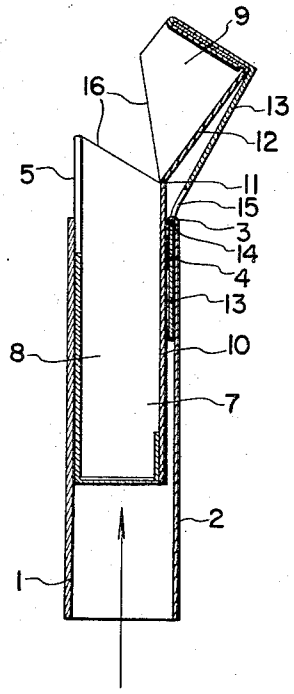
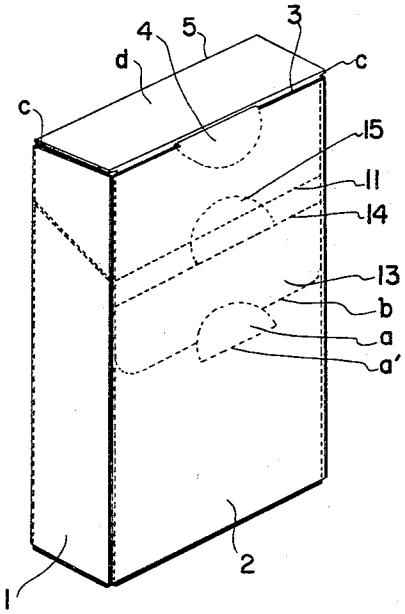


FIG.3



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FIG.4

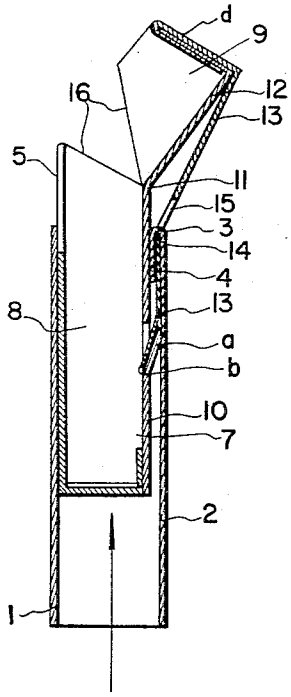


FIG.5a

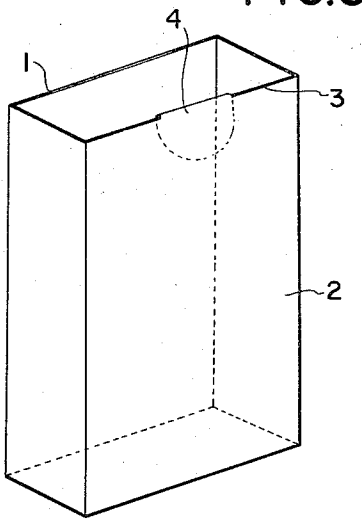
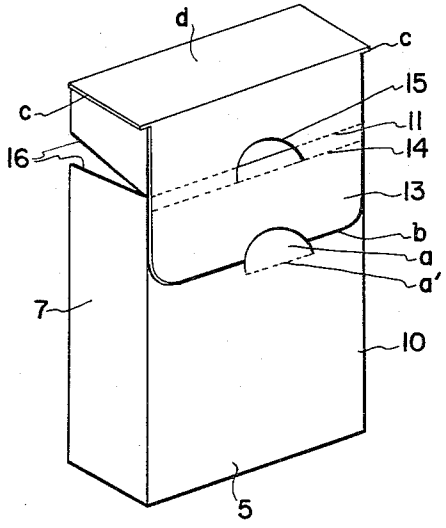


FIG.5b



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3,311,283

CARTON HAVING AN AUTOMATICALLY OPENABLE COVER

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3 Claims. (Cl. 229—20)

This invention relates to a carton having an automatically openable cover and having such a construction that the upper part of an inner case can be bent so as to open by a connection between a tab on the inner face of an outer sleeve-like case and a slidable member lying against the inner case when the inner case is pushed up along the outer sleeve-like case.

It is an object of the present invention to provide a carton which can be opened automatically by only one motion with no need of any special handling for opening the cover.

Another object of this invention is to provide a device to limit the amount the cover can be opened for making sure that the cover will close after the inner case has been pushed too far through the outer case during opening of the carton.

A further object of this invention is the provision of a device to close the carton so that the inner case will not drop down out of the outer case during closing.

A preferred embodiment of the invention is shown in the accompanying drawing in which:

FIG. 1 is a perspective view from the rear side of one embodiment of the invention;

FIG. 2 is a side sectional view of the carton of FIG. 1 after it has been opened;

FIG. 3 is a perspective view of an embodiment of the carton wherein a safety device has been provided;

FIG. 4 is a sectional view of the case of FIGURE 3 after it has been opened; and

FIGS. 5A and 5B are perspective views of the outer and inner cases, respectively, of FIGS. 3 and 4.

Like reference numerals indicate corresponding parts in the several views of the drawing.

Paperboard cartons having an inner casing slidable in an outer sleeve-like casing have been used widely for cigarettes, candies and so on, but such a carton not only requires handling to push the inner casing out of the outer casing but also requires handling by the fingers to pull and open the cover to remove the contents. These handlings may be cumbersome for an adult in taking, for example, cigarettes out of the carton and for a younger child in taking candies out of the carton.

We have now devised a new carton which can be opened automatically by only one motion of pushing the inner casing without need of other handlings owing to the provision of a new and simple device.

A case with only a device to open its cover automatically has a defect that when it is handled wrong such as, for example, by pushing the inner case downward by mistake, its contents may drop out of the case owing to the inner case falling out of the outer case, and when the inner case is pushed too far upwardly, its contents may also drop out of the case owing to the inner case coming completely out of the outer case, and when the inner case is pushed still further upwardly, closing the cover may become difficult and the expected action of a tab 4 on the outer case does not occur because the inner case is moved upward so far that an aperture 15 in the flap on the inner case bends the tab 4 upwardly. As a solution for such difficulties, tight contact of the inner case to the outer case can be provided, but a carton of this type may be expensive to manufacture with sufficient precision and moreover may result in bad sliding action between the casings during opening and closing and result in a bad effect on the action of the flap when opened too much. The carton of the present invention has a safety device shown in FIGURES 3, 4 and 5 which can eliminate the difficulties and faults above described, and easy sliding action and prevention of the inner case from coming out of the outer case can be attained by limiting the movement of the inner case without restricting the action of a tab. Thus the carton of the present invention may be said to be a completely satisfactory embodiment of an automatically openable carton.

One embodiment of this invention, referring to the drawing in greater detail, is described in the following example:

EXAMPLE 1

An outer sleeve-like casing 1 of rectangular cylindrical form is manufactured so that it has on the middle of the top edge 3 of its rear panel 2 a resilient tab 4 which is bent over against the inner face of the rear panel 2. An inner casing 5 is manufactured so that its rear panel 10 can be bent at a fold 11 by which the rear panel 10 is divided in two parts, i.e., a main part 8 and a cover 9. Other side panels of the inner casing 5 are separated completely along a line 16. A depending actuating member 13 is attached to the top edge of the rear cover panel 12 and extends down between the inside of the rear panel 2 of the outer casing and the rear panel 10 of the inner casing. At the position where the depending actuating member 13 is opposite the fold 11 in the rear panel 10 of the inner casing 5 when the carton is closed, is a fold 14 capable of being bent. In addition, at the position where the depending member 13 is opposite the tab 4 on the outer case 1 when the carton is opened is an aperture 15 having a similar shape but in the reverse position of the tab 4.

To open this carton, only one motion is required. It is only necessary to push the button of the inner casing in the direction as shown in FIGURE 2 with the tip of a finger. The tab 4 on the outer casing engages in the aperture 15 in the depending member 13 as the inner casing is pushed upward, and the depending member 13 itself cannot rise any further because of the engagement by the tab 4, the top of which extends between the rear panel 10 of the inner casing and the depending member 13. Therefore, when the inner casing 5 is pushed upward further, the cover 9 on the inner casing 5 is pivoted backward around the fold 11 by the depending member 13 and then the cover is opened at the line 16 so that the contents may be taken out of the inner casing. Thus this carton can be opened by only one motion by pushing on the bottom of the inner casing. Moreover, when the casing is to be closed, the cover 9 on the inner casing 5 is pushed downward and the tab 4 moves out of the aperture 15 in the depending member 13 and the carton can be closed smoothly. Although the cover opening device is included therein, the appearance of this carton is similar to the generally used cartons of this type and does not have an unusual form.

EXAMPLE 2

This example has a safety device to prevent the trouble resulting from the inner casing sliding out of the outer casing. As shown in FIGURES 3, 4 and 5, on the middle of a top edge 3 of a rear panel 2 of a rectangular cylindrical shaped sleeve-like outer casing 1 is a resilient tab 4 bent downwardly against the rear panel 2. Both side panels 7 of the inner casing 5 are separated into a main side panel 8 and a cover side panel 9, and the rear panel 10 is connected at a flexible fold 11 to cover rear panel 12. Against the rear face of the rear panel 12 of the cover is a depending member 13 having its top edge

connected to the top edge of the cover rear panel **12**. In the part of member **13** opposite the fold **11** when the carton is closed is a flexible fold **14**, and in the part of member **13** opposite the tab **4** on the outer case **1** when the carton is opened is an aperture **15** having a similar shape but in a reverse position to tab **4**. When the inner casing is pushed upward, the tab **4** enters the aperture **15**, and thus the depending member **13** is restrained against upward movement which results in the bending over of the cover **9** at the fold **11** and the case is opened. At a little lower position than that of the fold **11** on the rear panel **10** of the inner casing is a resilient tab *a* cut out of panel **10** so as to be directed upwardly and hinged to the panel **10** at the bottom of tab *a*. When the carton is closed, the lower edge *b* of the depending member **13** is engaged between the rear panel **10** and the upper part of the tab *a*. When the inner casing **5** is pushed upward for opening the carton, the tab **4** extends into the aperture **15** in the depending member **13** which results in the pivoting of the cover **9** to the open position. As the bending proceeds, the rear panel **10** and the tab *a* move further toward the lower edge *b* of the depending member **13**, and then are stopped from further upward movement by the bottom *a'* of the tab *a* engaging the lower edge *b* of member **13**. Accordingly, not only is the rise of the inner casing stopped but also the tab **4** is not pulled too hard by the aperture **15** so that automatic opening of the case can be done safely.

If the top panel *d* of the cover in the inner casing moves down lower than the tab **4**, the tab **4** moves out of contact with the rear panel of the inner case and tends to bend toward the upper edge of the outer casing due to its resiliency. Thus, when the inner casing is not pushed upward opening the carton, the tab is forced to extend upwardly from the edge of rear panel **2** and will not engage in aperture **15**, and thus it cannot perform its function. In order that the upper end of the inner case does not move lower than the top edge of the outer casing, the upper panel of the cover on the inner casing **5** extends laterally at *c* a distance about the same as the thickness of the side panels **7** of outer casing **1**, which extensions contact the upper edge of the side panels **7** of the outer casing when the carton is closed. Thus this device not only keeps the inner casing from moving downwardly so that the tab **4** will perform its function during opening of the carton but also prevents the inner casing from sliding down below the upper edge of the outer case.

We claim:

1. A carton having an automatically opening cover, said carton comprising an outer sleeve-like casing having an unapertured rear panel which extends the full length of the outer casing, a tab attached to the edge of the rear panel at the upper edge thereof and bent downwardly along the inside surface of the rear panel, an inner casing slidable within said outer casing and having a top panel, and at least a cover rear panel and cover side panels depending therefrom, the cover rear panel being hinged to the upper edge of the rear panel of the inner casing, and an actuating member hingedly secured to the rear edge of the cover top panel and extending downwardly between the rear panels of the inner and outer casings, said actuating member having an aperture therein at a point spaced below the edge thereof hinged to said cover top panel and in which said tab engages to stop upward movement of said inner casing relative to said outer casing when the inner casing is urged upwardly, said actuating member lying entirely within said outer casing when said inner casing is within said outer casing with the cover closed and the cover top panel level with the upper edge of the rear panel of the outer casing, whereby the cover is pivoted rearwardly on further upward movement of said inner casing relative to said outer casing.

2. A carton as claimed in claim **1** in which said cover top panel extends laterally beyond at least said depending cover side panels, whereby said extended portions rest against the upper edges of said outer casing when said inner casing is within said outer casing with the cover closed.

3. A carton as claimed in claim **1** in which said rear panel of said inner casing has a flap secured thereto and lying along the said rear panel and extending upwardly therealong, said flap being at a point spaced downwardly from the end of said actuating member when said inner casing is within the outer casing with the cover closed, whereby when the inner casing is moved upwardly within the outer casing and the cover is opened, further upward movement of the inner casing brings the flap under the lower end of said actuating member and stops still further upward movement of said inner casing.

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