Dec. 15, 1959 C. F. KLEIN 2,916,859

METHOD OF OPENING AND RESEALING A CARTON

Original Filed Feb. 8, 1954 2 Sheets-Sheet 1

Fig. 1

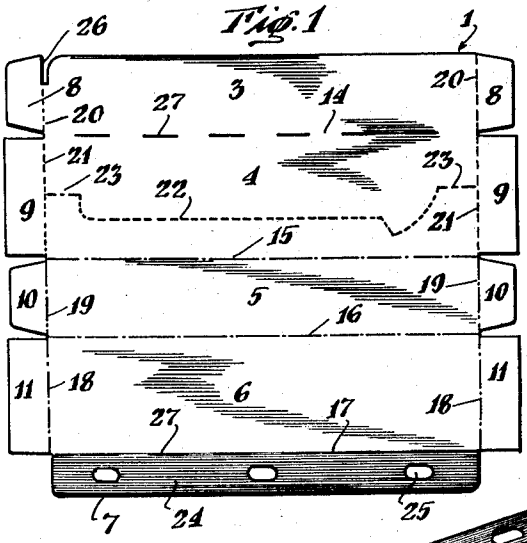


Fig. 6

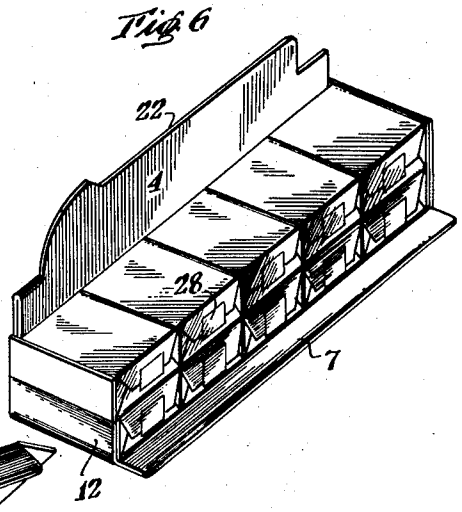


Fig. 2

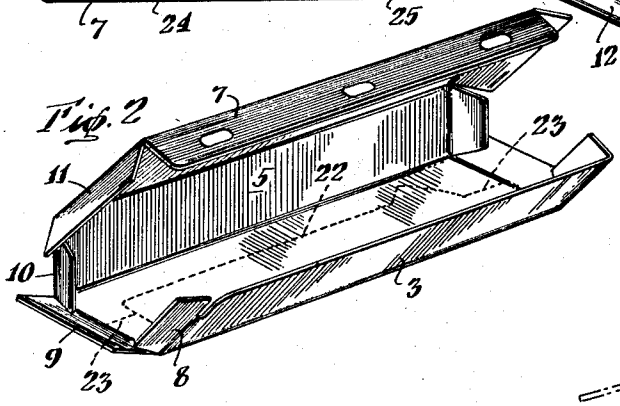


Fig. 7

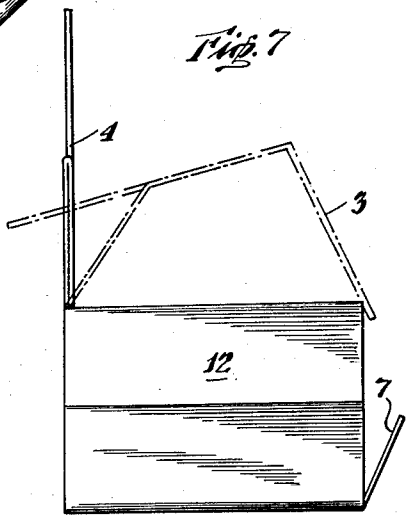
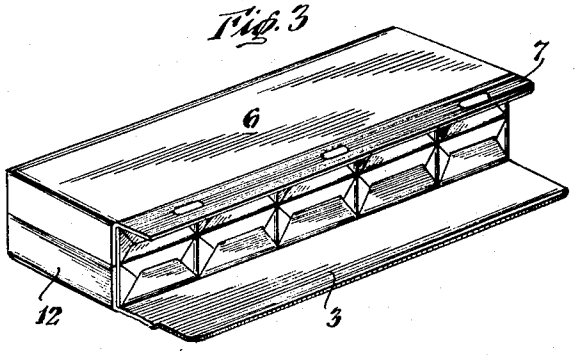


Fig. 3



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METHOD OF OPENING AND RESEALING A CARTON

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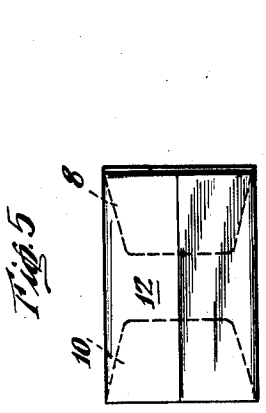


Fig. 5

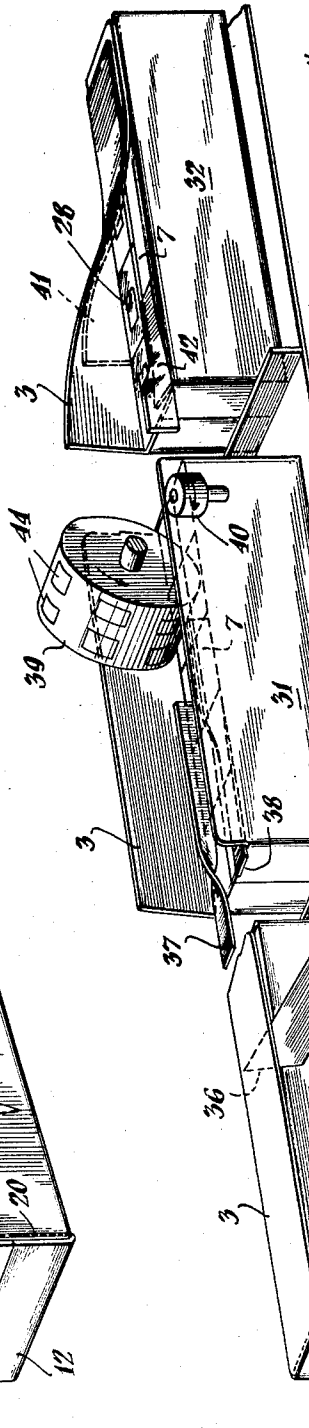


Fig. 8

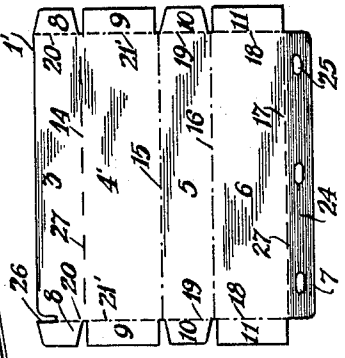


Fig. 9

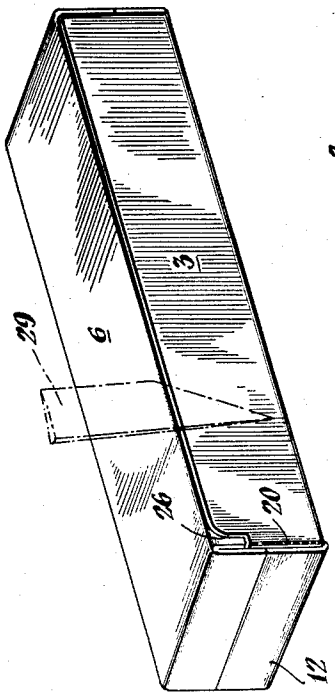


Fig. 4

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METHOD OF OPENING AND RESEALING A CARTON

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Original application February 8, 1954, Serial No. 408,670, now Patent No. 2,803,395, dated August 20, 1959. Divided and this application July 1, 1957, Serial No. 669,307

1 Claim. (Cl. 53—21)

The present invention relates to improvements in opening and resealing cartons made from paper board or like material and has for its principal feature the provision of a method by which cartons may be reopened and reclosed by automatic machinery after the original sealing without defacing the carton.

This application is a division of my copending application Serial No. 408,670, filed February 8, 1954, now Patent No. 2,803,395.

The following disclosure will discuss the application of the method of reopening principally with relation to cigarette cartons, but the invention may be applied to other packaging purposes and the disclosure is not limited to cigarette cartons.

The handling of cigarette packages in cartons has been complicated by the requirements of the various States for the affixation of tax stamps to the individual cigarette packs. The cartons are originally sealed by the manufacturers for shipment to many states. In those states that require stamps on the individual packages, the cartons must be reopened and the individual cigarette packs exposed for application of the stamps. In order to have access to all ten cigarette packs in the conventional top opening carton either the top flap must be opened and five packs removed or the front panel of the carton must be torn open and then reclosed. This tearing of the carton front causes the resealed carton to have a ragged and unattractive appearance which is detrimental to sales.

Due to the highly competitive nature of cigarette selling, manufacturers desire to package their cigarettes in attractive cartons and it is therefore desirable to provide a carton which will retain its original neat appearance after the tax stamps are applied. It is also desirable to provide a carton which allows the stamping action to be done by automatic machinery so that the tax stamps may be quickly and inexpensively applied. The carton of the present invention has a minimum-sized blank so that carton stock costs may be reduced or a thicker, more attractive cardboard stock may be used in place of a larger area blank of the same cost. Since the carton is not torn or defaced by the stamping operation, it is also designed for use as a display device.

Accordingly an object of the invention is to provide a method of opening and resealing the side of a carton.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claim, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification wherein:

Fig. 1 is a plan view of the blank from which the carton is formed;

Fig. 2 is a perspective view of the blank in a partially folded state;

Fig. 3 is a perspective view of the carton with the front panel reopened;

Fig. 4 is a perspective view of the sealed carton;

Fig. 5 is an end view of the sealed carton;

Fig. 6 is a perspective view of the carton folded for display purposes;

Fig. 7 is an end view showing the carton folded for display purposes;

Fig. 8 is a perspective view showing schematically the method of reopening and resealing the carton; and

Fig. 9 is a plan view of another embodiment of the carton blank.

Referring to the drawing wherein like characters of reference indicate like parts throughout the several views, Fig. 1 shows the blank **1** from which the carton is formed. This blank comprises a sheet of paperboard or other suitable material which is cut, scored, perforated and folded to form the completed carton of Fig. 4. The blank has a front panel **3**, a bottom panel **4**, a back panel **5**, a top panel **6**, and a front flap **7**. End flaps **8**, **9**, **10**, and **11** cooperate to form an end panel **12**, as will be explained more fully below. Blank **1** is scored along parallel lines **14**, **15**, **16**, and **17** for folding. End flaps **10** and **11** are scored at **18** and **19** and end flaps **8** have perforated lines **20**. Panel **4** may have a line across it comprising a perforated portion **22** and two other end scored portions **23** if it is desired to provide a display panel. The perforated portion **22** may be shaped to any suitable pattern for a display design. End flap **9** will be perforated along line **21** if a display panel is used. If no display panel is provided, line **21'** will be a scored line, as seen in Fig. 9. Flap **7** has a printed over area **24** which covers its surface completely except for several unprinted spots **25** to facilitate gluing flap **7** to front panel **3**, as will be explained below.

Fig. 2 shows the blank of Fig. 1 partially folded to form the carton. End flaps **8** and **10** are bent inwardly inside flaps **9** and **11**.

Fig. 3 shows the end panel **12** completely formed with flaps **9** and **11** abutting one another after they have been folded against and attached to flaps **8** and **10**. The carton is now closed on five sides, leaving the front open. Fig. 3 shows the carton filled with cigarette packages which each have one end exposed.

In Fig. 4 the carton is shown in its completely sealed condition. Flap **7** is folded to a position at right angles to top panel **6** and front panel **3** is folded against flap **7** and fastened thereto. The fastening between flap **7** and panel **3** is made so that flap **7** may be readily unfastened when the front of the carton is reopened. The flap **7** and panel **3** may be fastened by a series of glue spots. Fig. 1 shows the blank prepared for one method of making a glue spot fastening. In this method the flap **7** is completely printed over with an ink coating **24** except for several clear spots **25**. When glue is spread over the flap **7**, only the clear spots **25** of flap **7** will adhere to panel **3** and the printed portion **24** will not adhere. The printed area can be applied either to flap **7** as shown or may be applied to the back portion of front panel **3** which contacts flap **7** when the carton is folded. Alternately the glue may be applied only to the desired spots on flap **7**. Other methods of fastening may be used to secure flap **7** to panel **3**.

In order to reopen the carton, a tool such as a knife blade **29** is inserted behind the front panel **3** at the left hand side in slot **26**. The knife **29** is then slipped along behind panel **3** to cut the glue fastening spots and the perforated lines **20**. Flap **7** and panel **3** are now folded outwardly to expose the cigarette packages as seen in

Fig. 3. Score lines 14 and 17 have several slits 27 cut along their length to allow flap 7 and panel 3 to fold more easily and to be readily adaptable for machine handling. Stamps 28 are readily applied to the exposed packs. After the stamping or inspection is completed, the carton may be reclosed by folding the flap 7 down in its original folded position against the cigarette pack ends and by folding and regluing the front panel 3 against flap 7.

The carton is adapted to the affixation of tax stamps by automatic machinery. Fig. 8 shows schematically the method by which the cartons may be opened, stamped and reclosed by a continuous process on automatic machinery.

Three cartons 30, 31, and 32 are shown being moved from left to right by cleats 33 on a conveyor belt 34. Carton 30 has just arrived at the opening position. A stationary knife blade 35 with a diagonal cutting edge 36 is being drawn between flap 7 and panel 3 by the motion of carton 30. Diagonal edge 36 of knife 35 moves first into slot 26 in carton 30. Further motion of carton 30 causes the edge 36 to cut the perforated line 20 adjacent slot 26. As the carton then moves past knife 35, the glue spots fastening flap 7 and panel 3 are severed.

As the cartons are advanced by belt 34, flap 7 and panel 3 are opened by curved guides 37 and 38. Curved guide 37 is a flat strip twisted so that it curves from a horizontal position to a vertical position. As guide 37 is advanced beneath panel 3 by the movement of the carton, panel 3 will be opened outwardly by the outwardly turning surface of guide 37. Guide 38 similarly has a twisting surface in the opposite sense which opens flap 7.

Flap 7 and panel 3 of carton 31 have been opened by curved guides 37 and 38, exposing the ends of the cigarette packs. A stamping device such as wheel 39 now applies the tax stamps 28 to the exposed packages. Wheel 39 has a series of appropriately spaced stamps 44 around its circumference which imprint stamps 28 on the ends of the cigarette packages. Wheel 39 is driven by a suitable drive synchronized with the belt 34 to properly space the stamps. Any other suitable stamp applying means may be employed to stamp the exposed packages.

To reseal the packages, an adhesive is applied to flap 7 by a roller 40. Curved guides 41 and 42 fold flap 7 and panel 3 to their closed position. Guide 42 is a flat strip twisted to curve from a vertical to a horizontal position. This guide 42 folds flap 7 to a closed position against the cigarette packages. Guide 41 is similarly shaped but in the opposite sense to fold panel 3 inwardly. Guide 42 is located in advance of guide 41 to fold flap 7 beneath panel 3.

Carton 32 is passing guides 41 and 42 and the right hand end, which has emerged from the guides, has been completely reclosed. This method of opening and reclosing may be performed by machinery using suitable devices for opening, stamping and reclosing other than those shown in Fig. 8 and discussed above.

The reclosed carton presents the same appearance as it did when originally packed except for the cut perforated lines 20 which will not be noticeable except by close inspection. The carton will thus present a factory packed and fresh appearance to the purchaser.

Fig. 6 shows the carton set up for display purposes. In this position the carton is turned over from its normal position as shown in Fig. 3 so that the top panel is at the bottom. Front panel 3 is first separated from the flap 7. Perforated lines 20, 21 and 22 are cut or torn. As is shown in Fig. 7, the panel 4 is folded together along score lines 23 so that the design bounded by perforated line 22 is raised up in line with back panel 5 and the front panel 3 is tucked in behind the cigarette packs and flat against panel 5. Fig. 7 shows the display panel 4 partly folded into position in the dotted lines and completely erected in the solid lines.

The small blank size for the carton is achieved by reducing the overlap in the panel design of the carton. The end panels have a minimum of overlap, since the outer layer composed of the flaps 9 and 11 has no overlap at all and the supporting flaps behind these flaps 8 and 9 are designed to be of minimum area. The display panel has been designed so that an artistic display can be made from the carton with no addition to the blank size from the size already required to package the cigarette packs or other items.

A cigarette carton is provided which holds ten packs of cigarettes in the normal manner and which may be opened readily by an automatic machine or otherwise to expose all the cigarette packs simultaneously for inspection or for the application of tax stamps. In addition, a carton is provided which is made from a blank of minimum size for the type of carton desired. The carton will present an attractive appearance after having been opened for stamp application and has a simple and effective display panel which is folded from the carton itself without the addition of any extra material not already needed for the carton itself. A method of fastening a cigarette carton is provided which allows the carton to be opened readily and without defacing the carton by a simple machine operation.

As various changes may be made in the form, materials, construction, and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not limiting in any sense.

Having thus described my invention, I claim:

In the method of stamping a plurality of packages in a carton, the steps which comprise enclosing a stack of said packages in a carton having wall means including a panel element overlapping a flap element along a side of the carton and end wall means articulated with said panel element along a fold line at a corner of said carton, sealing said carton by adhesively securing said panel element over said flap element in substantially fully covering relation with a portion of the area of said flap element adjacent one end of the carton uncovered and exposed at one end of said line of fold by a slot formed in said panel element at the forward end of the carton, moving said sealed carton continuously forwardly past a fixed knife having a rearwardly facing edge diagonal to the direction of said movement positioned so as first to seat a portion of said edge in said slot and immediately thereafter, responsive to continued movement of the carton, to engage said line of fold with adjacent portions of said edge and sever said end wall means from said panel element and interpose said knife between said flap and panel elements, continuously moving said carton with said knife between said elements to separate the two, unfolding said elements to open the carton and expose the packages, stamping the exposed packages, and thereafter folding said flap and panel elements into overlapping, carton-closing relation and securing said elements in said relation.

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