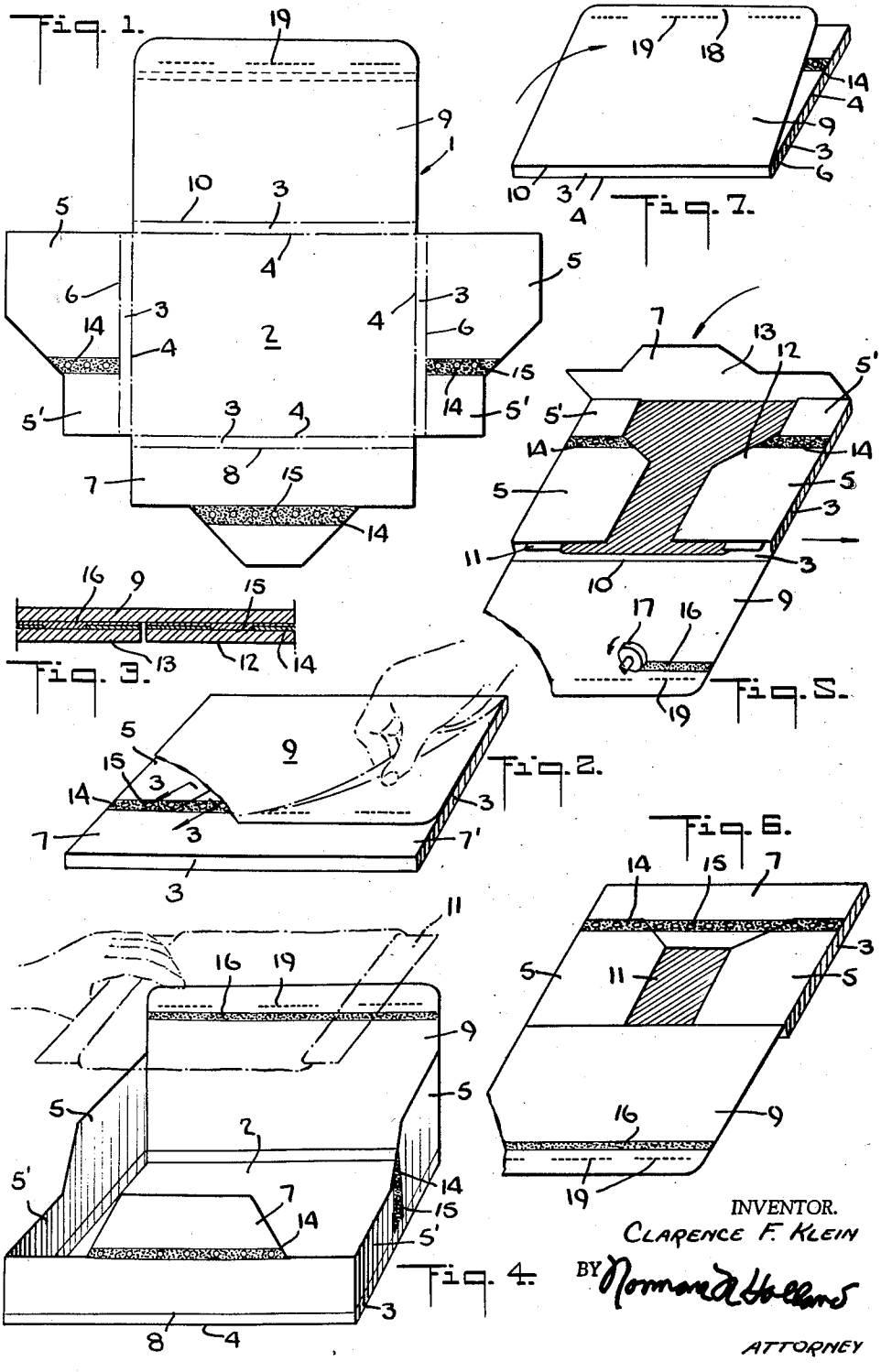
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TAMPER-PROOF CARTON

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TAMPER-PROOF CARTON

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The present invention relates to an improved carton of rigid tamper-proof construction adapted for the packaging of products such as card mounted items or similar articles. The present invention provides a relatively inexpensive and attractive carton adapted for the counter display of articles, and at the same time it provides a rigid package which is neither readily folded nor otherwise tampered with so that customers are prevented from accidentally or intentionally removing articles from the package at the counter or from folding the package and secreting it about their persons.

In order to provide such a package, it is desirable to have one formed of a relatively stiff paper board and also one which is easily loaded and sealed on automatic or semi-automatic machines. Previously, such packages were made of relatively flexible material in an envelope form, and although these packages were satisfactory for most packaging and display purposes, their easy accessability and flexibility made it difficult for sales people to prevent unintentional damage to or thefts of the carton contents by customers.

Accordingly, an object of the present invention is to provide an improved carton.

Another object of the present invention is to provide a relatively inexpensive carton of relatively stiff construction.

Another object of the present invention is to provide a carton which is readily sealed initially and unsealed thereafter but which cannot be resealed after its initial opening.

Another object of the present invention is to provide a glued, rigid package whose rigidity is comparable to that of a set-up 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 claims, 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 top plan view of a preferred embodiment of the carton blank of the present invention;

Fig. 2 is a perspective view partially cut away of the sealed carton formed from the blank of Fig. 1;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a diagrammatic perspective view of the carton in position for filling;

Fig. 5 is a perspective view of the partially sealed carton showing two top flaps folded into their sealed position;

Fig. 6 is a perspective view similar to Fig. 5 showing the third top flap folded into sealed position; and

Fig. 7 is a perspective view similar to Figs. 5 and 6 showing the carton with the outermost top flap being folded into the sealed position.

As seen in Fig. 1, the carton blank 1 comprises a bottom panel 2 with interconnected side panels 3 defined by score lines 4. Two of the opposite side panels 3 have similar top flaps 5 connected thereto at the scored fold lines 6. One of the remaining side panels 3 has a top flap 7 connected thereto at the scored fold line 8, and the remaining side panel 3 has an upper top flap 9 connected thereto at the scored fold line 10.

As seen in Fig. 4, the carton is loaded by first folding the side panels 3 and the interconnected top panels 5, 7, and 9 upwardly generally vertically from the bottom panel 2. This may be done by hand, although it preferably is done mechanically by placing the blank 1 in a suitable pocket having vacuum suction outlets which draw the carton into the pocket and which erect the side panels 3 and the top flaps 5, 7, and 9 to their generally vertical position as seen in Fig. 4. In this position the carton is loaded with the product such as carded stockings or another generally flat article indicated at 11. The article 11 is placed against the bottom 2 and within the side panels 3. The top flaps 5, 7, and 9 are now folded downwardly over the article 11 in any order; however, the preferred folding sequence is illustrated in Figs. 5, 6, and 7. Top flaps 5 are first folded downwardly against the carded product, and thereafter the top flap 7 is folded downwardly against the top flaps 5 so that the angularly cut portions 12 and 13 of the top flaps 5 and 7, respectively, are brought into abutting engagement and so that the portions 12 and 13 are disposed in a single layer, as seen in the sectional view in Fig. 3. The narrow portions 5' of top flaps 5 will be beneath the widest portion 7' of top flap 7 which presents a smooth surface on the sealed carton as seen in Fig. 2. The top flap 9 is now folded downwardly over the top flaps 5 and 7, and it is detachably connected thereto. A preferred means of attaching the top flap 9 to the top flaps 5 and 7 is illustrated in the drawings. In this method a printed-over portion 14 is provided on the top flaps 5 and 7 having open areas 15 therein. Prior to the folding down of the top flap 9, a glue strip 16 is applied thereto by a means such as glue roller 17. When the top flap 9 is folded against the top flaps 5 and 7, the glue strip 16 overlies the printed-over portion 14 and the clear portions 15 are attached to the top flap 9. The glue which engages the printed-over portion 14 is preferably a water-based one which adheres only lightly or not at all except at the clear portions 15 so that a spot-glued fastening results. A detachable connection is thereby formed between the top flap 9 and the remaining top flaps, which is readily broken when opening the package and which is, at the same time, difficult to reclose without detection. Other spot gluing techniques or easily opened fastenings may be used. In order to facilitate the opening of the package, a pull-tab 18 is formed at the free edge of the top flap 9 by the perforated score line 19.

The sealing of the package may be performed by hand; however, it is also adapted for automatic closing on a conveyor-type sealing machine wherein suitable folding bars, kickers, presser bars, and glue wheels may be used in the usual manner to fold the flaps into their sealed position in sequence. As is indicated diagrammatically in Fig. 5, the glue strip 16 may be formed by suitable gluing wheel 17 as the partially folded blank 1 is moved by a conveyor past the folding bars and kickers.

By having the abutting portions 12 and 13 of the top flaps 5 and 7 in a single layer, a relatively tight joint is provided at this point to prevent the entry of dust and other contaminating elements into the sealed articles, and at the same time the sealing of the package is facili-

tated as the printed-over portion 14 and the glue strip 16 overlap one another along a relatively flat surface.

Since the carton is formed of paper board, suitable apertures or windows may be provided in the bottom panel 2 or the other panels to display the contents without weakening the carton.

It will be seen that an improved, attractive and tamper-proof package has been provided which is relatively inexpensive and which is easily loaded and sealed. Since it is formed from a paper board blank, the package is relatively stiff even where windows are provided for display purposes and the carton is not easily folded accidentally or intentionally to thereby damage the material or to encourage the theft of articles therefrom. The package is also particularly well adapted for a break-open seal which engages and holds all the top flaps in a tightly sealed relationship before the seal is broken, which prevents ready access to the package, and which prevents a resealing by the customer after he has inspected or tampered with the contents.

As various changes may be made in the form, 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 in a limiting sense.

Having thus described my invention, I claim:

1. A folding carton comprising a cardboard blank cut, scored and folded to form a four-sided bottom panel, side panels connected at one edge to each side of said bottom panel, a top flap connected at an opposite edge of each side panel, a pair of said top flaps on opposite side panels each having a flap abutting portion on its free edge opposite to its attached edge, said abutting portions being located intermediate the ends of the free edge and disposed at an angle with respect to the attached edge of the top flap, a third top flap having a pair of abutting portions on its free edge opposite to its attached edge, said pair of abutting surfaces being located intermediate the ends of the free edge and disposed at an angle to each other and to the attached edge of the third top flap, said pair of top flaps and said third top flap being folded into partially overlapping relationship with the abutting portions of each of said pair of top flaps abutting one of the abutting portions on said third top flap and with all of said abutting portions disposed in the same plane, and the fourth top flap being folded against said other top flaps and fastened to each adjacent to their abutting portions along a zone extending across the coplanar portions of said pair of top flaps and said third top flap whereby a tight seal is provided adjacent to the overlapped portions of said pair of top flaps and said third top flap.

2. The folding carton as claimed in claim 1 in which each of said abutting portions of said third top flap is equally spaced from the connection between the third top flap and its attached side panel, and the fastened zone whereby the fourth top flap is fastened to each of the other top flaps is generally parallel to the connection between the third top flap and its attached side panel.

3. The folding carton as claimed in claim 2 in which

said zone is spaced from the free edge of said fourth top flap opposite its attached edge, and said fourth top flap has a weakened score line intermediate said zone and said free edge to define a pull tab.

4. A blank for a folding carton comprising a piece of paper board cut and scored to form a four-sided bottom panel, side panels connected at one edge to each side of said bottom panel, a top flap connected at an opposite edge of each side panel, a pair of said top flaps on opposite side panels each having a flap abutting portion on its free edge opposite to its attached edge, said abutting portions being located intermedate the ends of the free edge and disposed at an angle with respect to the attached edge of the top flap, a third top flap having a pair of abutting portions on its free edge opposite to its attached edge, said pair of abutting surfaces being located intermediate the ends of the free edge and disposed at an angle to each other and to the attached edge of the third top flap, said pair of top flaps and said third top flap being adapted to be folded into partially overlapping relationship with the abutting portions of each of said pair of top flaps abutting one of the abutting portions on said third top flap and with all of said abutting portions disposed in the same plane, and the fourth top flap adapted for being folded against said other top flaps and fastened to each adjacent to their abutting portions along a zone extending across the coplanar portions of said pair of top flaps and said third top flap to form a tight seal adjacent to the overlapped portions of said pair of top flaps and said third top flap.

5. The blank as claimed in claim 4 which further comprises a weakened score line across said fourth top flap spaced from its free edge and adapted to form a pull tab.

6. A folding carton comprising a cardboard blank cut, scored, and folded to form a four-sided bottom panel, side panels connected at one edge to each side of said bottom panel, a top flap connected at an opposite edge of each side panel, opposite top flaps being folded to partially underlie a third top flap whereby a tightly sealed container may be provided possessing two adjacent reinforced corners, each of said opposite top flaps having a free edge abutting a free edge of said third top flap whereby abutting edges of adjacent top flaps may lie substantially in one plane to provide a tight seal, and the fourth top flap being folded to at least partially overlie each of said other top flaps and being removably fastened thereto adjacent to their abutting edges, said fourth top flap being fastened to each of the other top flaps along a zone generally parallel to the connection between the third top flap and its attached side panel, said zone lying in an area which is substantially in one plane so as to permit more effective sealing.

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