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H. RIEGE ET AL

2,437,835

COLLAPSIBLE CARTON

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2 Sheets-Sheet 1

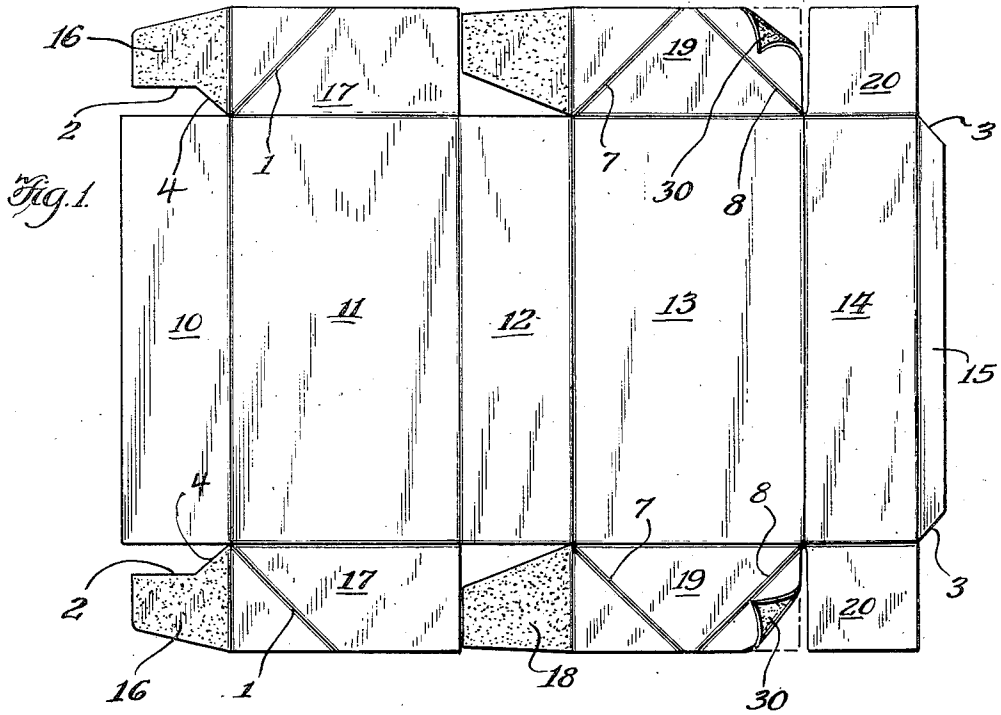
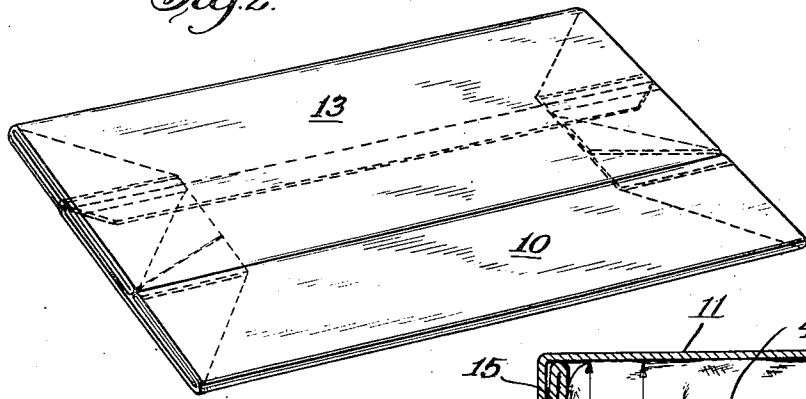
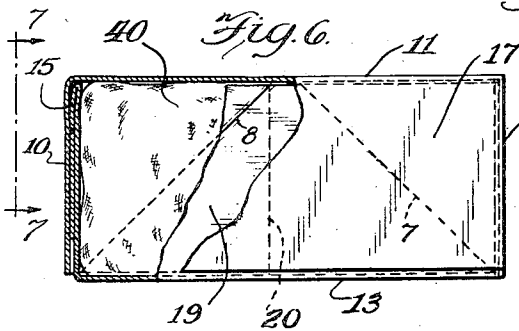
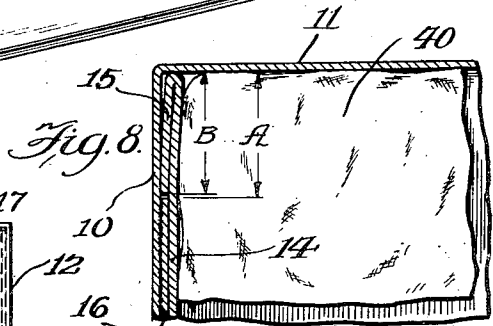


Fig. 2.



Inventors
Harold Riege and
Edwin C. Siewert
By *graph Rossmann*
Atty.

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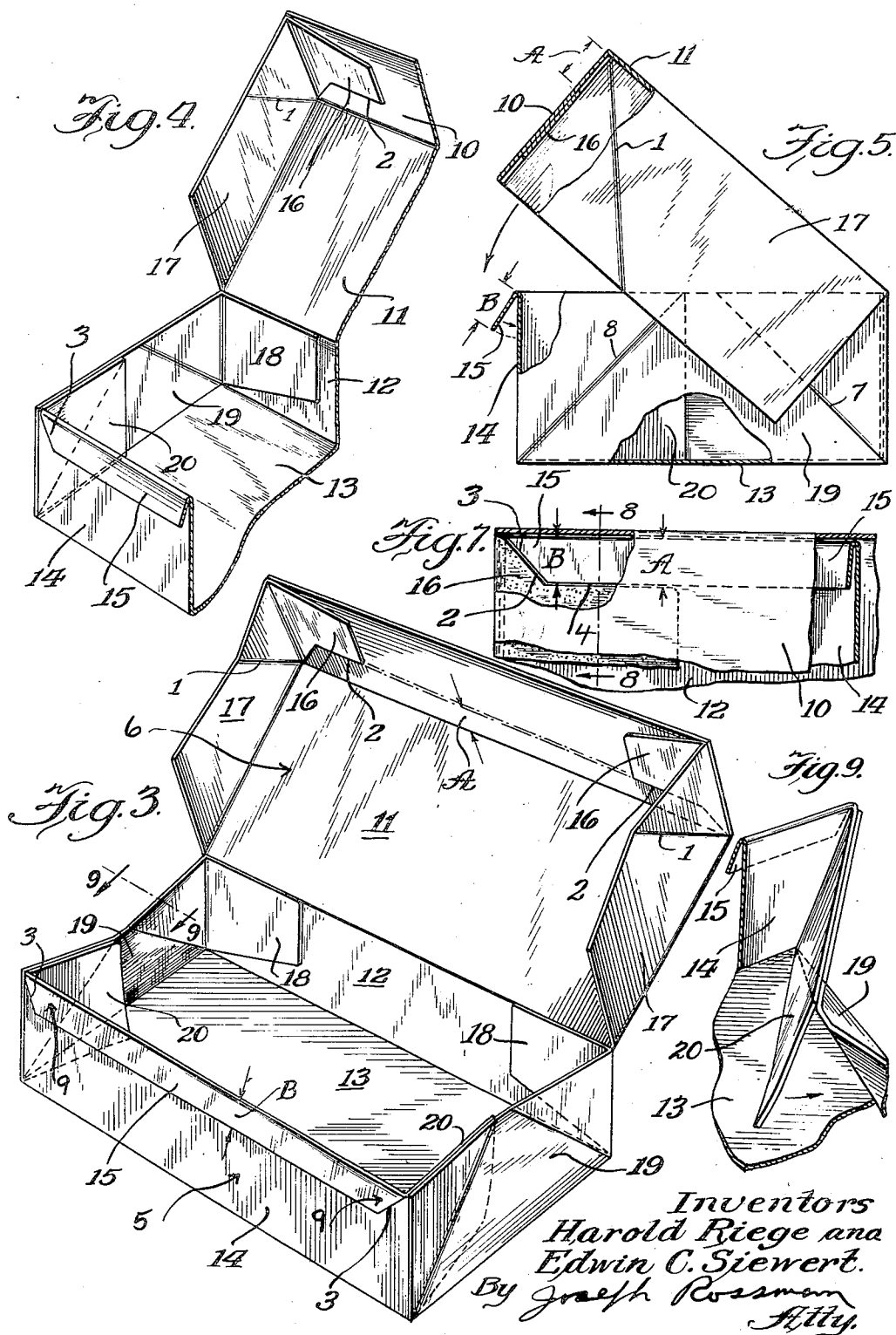
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

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COLLAPSIBLE CARTON

Harold Riege and Edwin C. Siewert, Wausau,
Wis., assignors to Marathon Corporation,
Rothschild, Wis., a corporation of Wisconsin

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1 Claim. (Cl. 229—33)

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This invention relates to a collapsible carton made preferably from a single blank of cardboard and the like. More specifically the invention relates to a carton having a tray or receptacle portion provided with a hinged cover provided with locking means for retaining the cover in closed condition when goods are packaged in the carton.

Further details and advantages of the present invention will be apparent from the following specification and drawings wherein,

Figure 1 is a plan view of the blank from which the carton is made,

Figure 2 is a perspective plan view of the carton in flat collapsed condition,

Figure 3 is a perspective view of the carton in partially set up condition,

Figure 4 is a perspective fragmental view of the carton fully set up,

Figure 5 is an end view of the carton, partly in section, with the cover in partially closed position,

Figure 6 is an end view partly in section of the carton filled with goods showing the cover in closed locked condition,

Figure 7 is a fragmental sectional view taken along lines 7—7 of Figure 6,

Figure 8 is an enlarged fragmental sectional view taken on lines 8—8 of Figure 7, and

Figure 9 is a fragmental perspective view of the carton partially set up taken along lines 9—9 of Figure 3.

For the purpose of illustrating the invention, there is shown in the accompanying drawings a form thereof which is at present preferred, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the carton parts as herein shown and described.

Referring to the drawings, the carton is made from an integral blank of paper, cardboard and the like, suitably cut and scored as illustrated in Figure 1 to provide a foldable tray portion, indicated generally by numeral 5 in Figure 3, consisting of a bottom wall 13, front wall 14, rear wall 12, and side walls 19. Side walls 19 are provided with flaps 18 which are glued to the rear wall 12 as illustrated in Figure 3. Side walls 19 are also provided with diagonal intersecting score lines 7 and 8 to permit collapsing of the tray portion 5 in the flat folded position illustrated in Figure 2. Front wall 14 is provided with end

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flaps 20 which are adapted to be glued to the overlapped triangular portions 30 of side walls 19. When the tray portion 5 is set up from its flat collapsed position illustrated in Figure 2, the free portions of flaps 20 will slide over the bottom panel 13, as shown in Figure 3 and 9, to assume the final set up position, as shown in Figure 4, whereby the tray portion will remain in its fully set up condition for receiving goods 40 to be packaged therein.

The front wall 14 of the tray portion is provided at its upper edge with an externally folded locking flap 15 integrally hinged to the front wall as illustrated in Figures 3 and 5. The flap 15 is preferably hinged to the wall 14 along a score line positioned at the upper edge of the wall 14 so that when flap 15 is bent back it has a tendency to spring outwardly. Locking flap 15 is adapted to engage and lock with coacting portions on a hinged cover portion, indicated generally by numeral 6 in Figure 3, consisting of a top wall 11, side walls 17 and a front wall 10. The top wall 11 is integrally hinged to the top of rear wall 12 of the tray portion as shown in Figure 3. Side walls 17 are provided with flaps 16 which are adhered to overlapping portions of the front wall 10 of the cover. Flaps 16 are recessed or cut along lines 2 and 3 adjacent the cover portion 11 so as to provide a substantially L-shaped recessed portion which is adapted for receiving and retaining mating portions of the locking flap in snug engagement. The abutment edges 2 and 3 are arranged so as to abut with and engage the adjacent free abutment edge portions of the ends of locking flap 15 when the cover is placed in closed position as illustrated in Figures 6, 7 and 8. In this position the inwardly bevelled abutment edges 3 of locking flap 15 will abut and engage with the inclined abutment edge 4 of flaps 16 and the free abutment edges of the end portions 9 of flap 15 will abut and engage the abutment edge 2 of end flaps 16. It will also be noted that the width B of locking flap 15 is slightly less than the distance A of the cut line 2 from the top panel 11 of the cover, as shown in Figures 7 and 8, thereby insuring a snug fit of the end portions 9 of the locking flap within the recessed or cut portions of flaps 16. The tendency of the flap 15 to spring outwardly on its hinge line as previously mentioned ensures positive engagement and locking of the ends of the flap 15 with the recessed portions provided in the front wall 10 of the cover. This construction ensures retention and locking

of the cover portion when it is placed in closed position.

When goods 40 are placed in the tray portion 5 and the cover 6 is closed, a distinct click can be heard when the cover is fully closed as the ends 9 of the locking flap 15 will fit into the recessed portions of flaps 18 and thus securely lock together. The cover will not open unless considerable force is applied to it upon which the locking flap will hinge upwardly and thus release its locking function without, however, tearing or rupturing any part of the carton as the walls of the carton are sufficiently flexible. The cover 6 can be readily reclosed and locked in closed position as often as may be desired.

Numerous modifications may be made in the carton construction previously described which constitutes one embodiment of our invention. The flaps 16 with their cut-out or recessed portions which are adapted to receive the locking flap 15 can be replaced by other equivalent means on the wall 10 of the cover. For example, flaps 16 may be replaced by separately adhered tabs provided with recessed portions for interengaging and locking with the locking flap. The locking flap 15 also need not extend the full length of the upper edge of the wall 15, but may be replaced by two separate flaps hinged adjacent each end of the front wall 14. A separate tab may also be glued at the middle of the front wall 10 of the cover and provided with a suitably recessed portion for receiving and engaging with a mating tongue portion hinged at the middle of the upper edge of the front wall 14 of the tray portion. The locking construction herein disclosed is obviously not dependent upon the specific tray and cover construction illustrated in the drawings and can obviously be applied effectively to any type of carton construction having a tray portion and a cover portion hinged thereto.

The locking construction herein disclosed serves to retain the cover in locked position when the filled with goods cartons are handled. Furthermore, when the filled cartons are to be wrapped in an outer wrapper by automatic machinery the cover will not spring open during the wrapping operations. Our carton is thus particularly adapted for making packages which are required to be completely wrapped with an outer protective wrapper as for example in the case of packaging frozen foods and the like.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claim rather than to the foregoing description to indicate the scope of the invention.

We claim:

An improved one-piece paper board blank designed for automatic high speed machine assembly into a collapsible carton comprising a folding tray forming part having a bottom wall panel, a front wall panel, a rear wall panel, and two opposite side wall panels of substantially equal height hinged to said bottom wall panel, a score line extending from each corner of said bottom wall panel diagonally across the adjacent side wall panel, said diagonally extending score lines defining a front triangular section and

a rear triangular section in each of said tray side wall panels, a connecting flap hinged to each end of said front wall panel and separated from the front edge of the adjacent side wall panel and designed for adhesive attachment to the inside face of the adjacent front triangular section of the tray side wall panel, a connecting flap extending from the rear edge of each of said tray side wall panels and separated from said rear wall panel and designed for adhesive attachment to the adjacent inside face of said rear wall panel, an abutment flap hinged to the upper edge of said tray front wall panel, said diagonally extending score lines permitting folding first of said tray side wall panels into a position substantially parallel to and overlying said bottom wall panel and then folding said front and rear tray wall panels to overlie said tray side wall panels when the assembled carton is in collapsed position, said blank including a folding cover-forming part comprising a top cover panel hinged to the upper edge of said rear wall panel and having an area substantially equal to said bottom wall panel of the tray part, a front cover panel hinged to the front edge of said top cover panel and having an area substantially equal to said tray front wall panel, a pair of opposite side cover panels hinged to the opposite side edges of said top cover panel each substantially equal in area to the side wall panel of said tray part, a score line extending from each front corner of said top cover panel diagonally across the adjacent side cover panel defining a front triangular section in each of said side cover panels, a connecting tab extending from the front end of each of said side cover panels but separated from the adjacent side edge of said front cover panel and designed to be adhesively secured to the inside face of the adjacent front cover panel, said diagonally extending score lines in said side cover panels permitting folding first of said side cover panels to overlie said top cover panel and then folding of said front cover panel to overlie said side cover panels when the assembled cover part is in collapsed position, said tabs having an abutment edge associated therewith adapted to cooperate with the abutment flap associated with the tray front wall panel to releasably retain the cover part in closed position when the carton is assembled and erected.

HAROLD RIEGE.
EDWIN C. SIEWERT.

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