Oct. 24, 1950 G. E. WAUDA 2,527,167

CARTON

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Fig. 1.

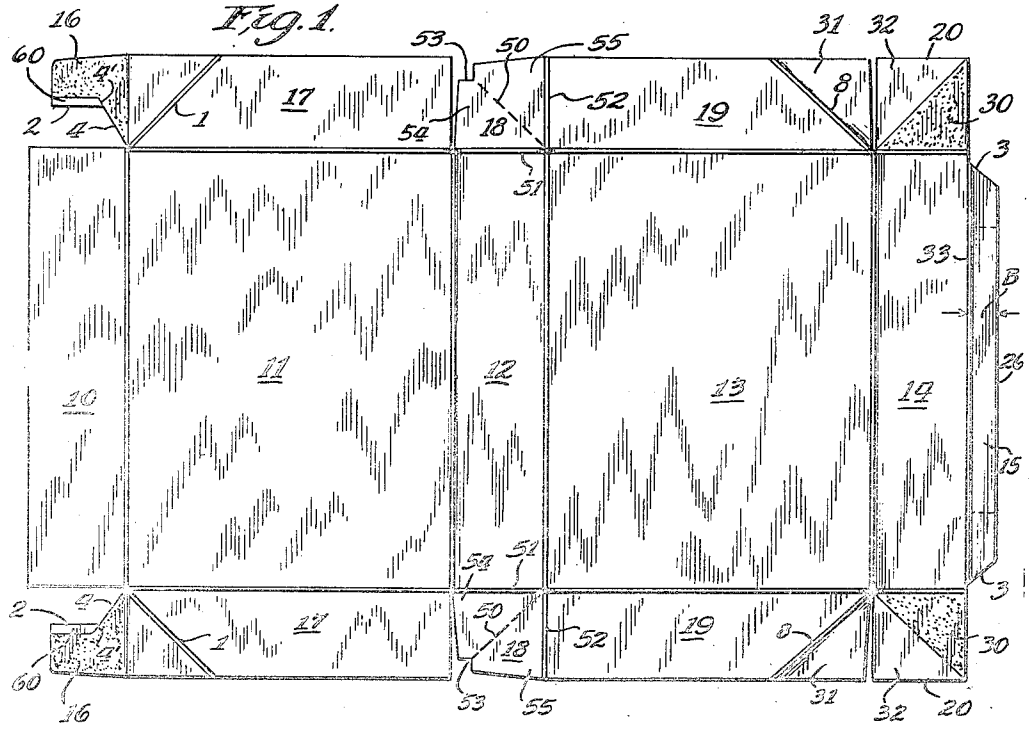



Fig. 5.

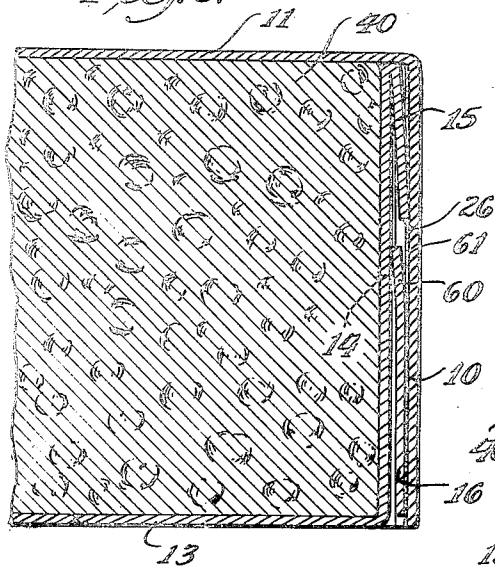
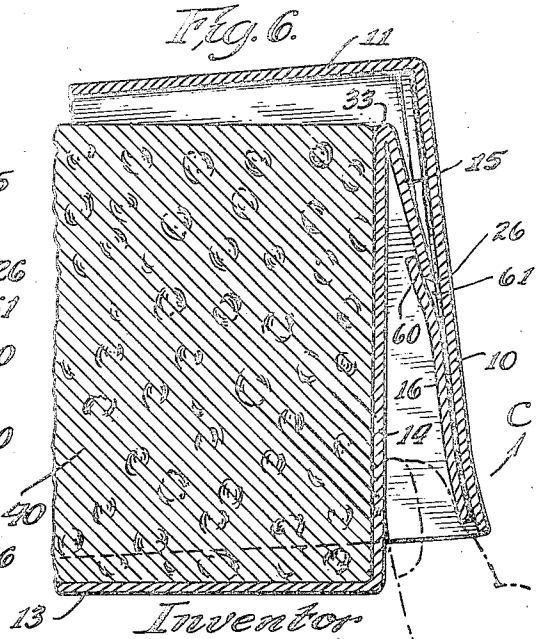



Fig. 6.




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Fig. 2.

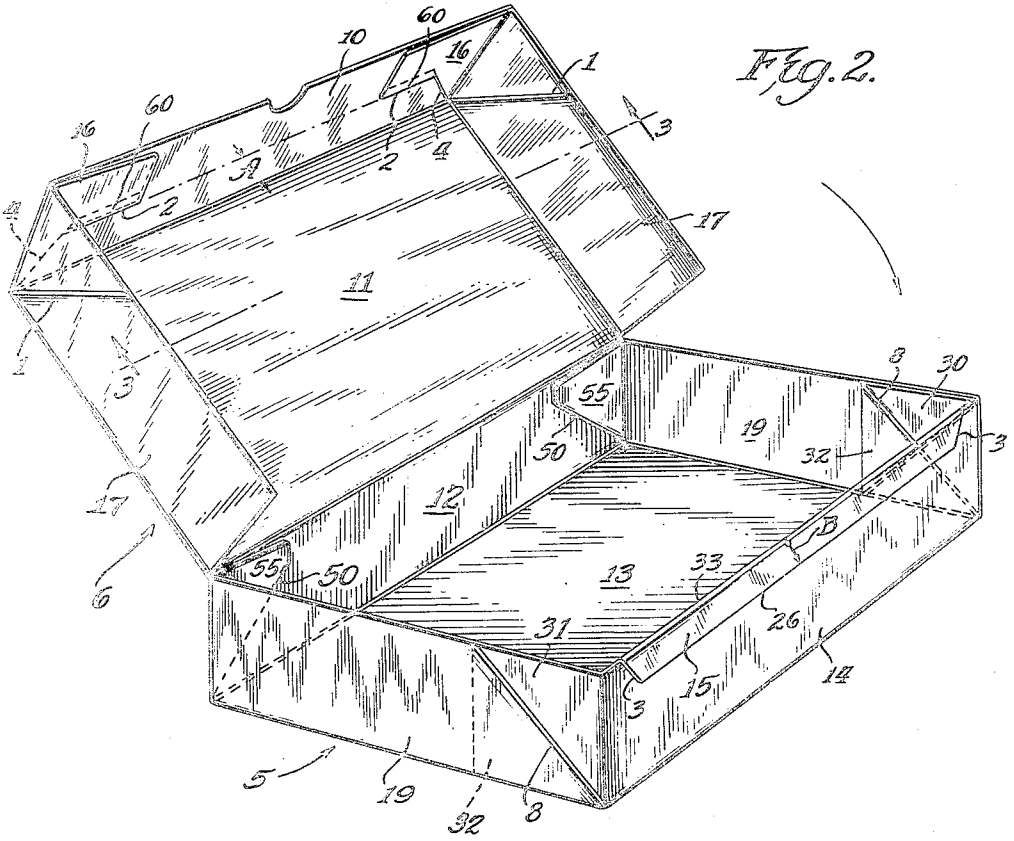


Fig. 3.

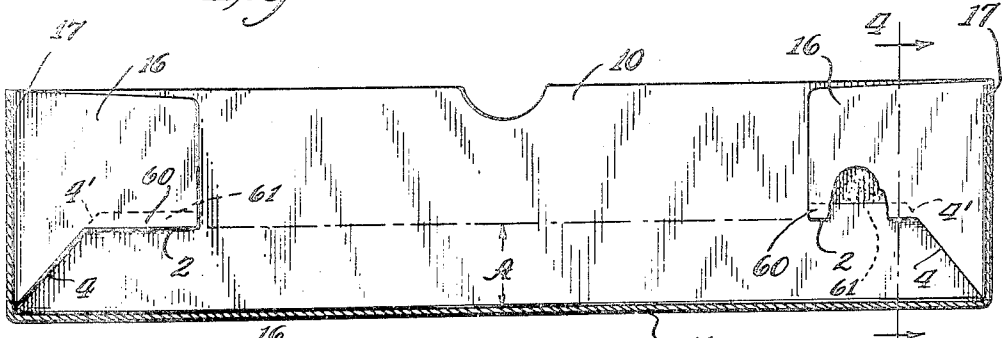
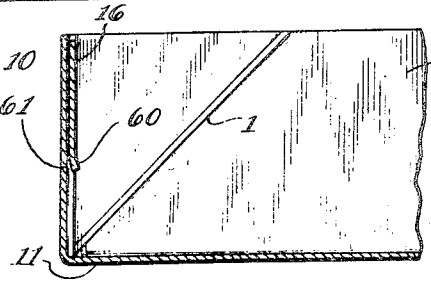


Fig. 4.



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# UNITED STATES PATENT OFFICE

2,527,167

## CARTON

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2 Claims. (Cl. 229—36)

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The 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 positive releasable 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 outer surface of an integral blank from which the improved carton is formed;

Figure 2 is a perspective view of a fully set-up carton formed from the blank illustrated in Figure 1;

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

Figure 4 is a fragmental, sectional view taken along the line 4—4 of Figure 3;

Figure 5 is a fragmental, vertical, sectional view of the commodity-filled carton illustrating the relationship of the cover locking means and the cooperating locking flap of the tray, and

Figure 6 is a view similar to Figure 5, illustrating the manner in which the cover is releasably locked to the tray.

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 2. The tray portion 5 comprises a bottom wall 13, front wall 14, rear wall 12, and end walls 19. Hinge flaps 18, diagonally scored at 50, are integrally connected to the rear wall 12 and the end walls 19 by score lines 51 and 52, respectively. Preferably, the score line 50 is perforated. The hinge flaps 18 are provided with L-shaped notches 53 at their free corners to permit adjacent substantially triangular segments 54 to be glued to the rear wall 12. The unadhered segments 55 hinge the end walls 19 to the rear wall 12 along

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the score line 50, as illustrated in Figure 2. The segments 54, however, need not be glued to the rear wall 12 to achieve the desired hinging action. End walls 19 are also provided with diagonal score lines 8, which in combination with the scored hinge flaps 18, permit collapsing of the tray portion 5 in flat folded position.

The front wall 14 is provided with end flaps 20. Triangular segments 30 of the flaps 20 are adapted to be overlapped and glued to the inner surface of triangular portions 31 of end walls 19, leaving triangular segments 32 of the flaps 20 free and unadhered. When the tray portion 5 is set up from its flat collapsed position illustrated in Figure 2, the free portions 32 of flaps 20 will slide over the bottom panel 13 to assume the final set-up position 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 5 is provided at its upper edge with an externally folded locking flap 15 integrally hinged to the front wall. The flap 15 is preferably hinged to the wall 14 along a score line 33 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, having diagonally cut free side edges 3 and a free forward edge 26, is adapted to engage and lock with coacting portions on a hinged cover portion, indicated generally by numeral 6 in Figure 2. The cover 6 comprises 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 5 as shown in Figure 2. Side walls 17 are provided with flaps 16, the major areas of which are overlapped and adhered to portions of the front wall 10 of the cover 6. The side walls 17 are also provided with diagonal score lines 1 to permit collapsing the cover portion into flat condition.

The flaps 16 are recessed or cut along lines 2 and 4 adjacent the front wall 10 so as to provide a substantially L-shaped recessed portion. The sides of the flaps 16 which are to be overlapped and adhered to the front wall 10 of the cover are coated with adhesive except for the marginal areas 60. To aid in defining the area which is unadhered to the front wall 10, the flap 16 may be cut at 4'. The cut line 4' is preferably a continuation of the line 4 and is approximately one-eighth (⅛) inch in length. Thus, when the flaps 16 are overlapped and glued to the inside surface of front wall 10, pockets 61 are formed by the marginal areas 60 in conjunction with the unadhered, underlying front wall portions, as

shown in Figures 4, 5 and 6. The adhesive may be applied to selected areas of the front wall 10 instead of the flaps 16 so that upon overlapping, the flaps 16 are adhered to the front wall 10 except for the pocket forming portions. Also, the carton material itself may be treated, coated or laminated with suitable compositions or materials which will cause adherence upon the application of heat and pressure. When heat is utilized to obtain adherence between the flaps 16 and the front wall 10, the adjacent surfaces which form the pockets 61 are either masked so that adherence is not obtained at these areas or else the application of heat and pressure is selectively limited to avoid adherence at these areas.

After filling the set-up tray portion 5 shown in Figure 2 with a suitable commodity 40, the cover portion 6 is placed in closed position as shown in Figure 5. In this position, the inwardly bevelled abutment edges 3 of the locking flap 15 will abut and engage with the inclined abutment edges 4 of flaps 16. It will be noted that the width B of the locking flap 15 is slightly less than the distance A of the cut line 2 from the top panel 11 of the cover 6. The tendency of the flap 15 to spring outwardly on its hinge line 33 will cause the locking flap to be urged against the front wall 10 of the cover 6. Thus, with the carton closed as shown in Figure 5, efforts to open the carton by movement in the direction of the arrow C, as shown in Figure 6, will cause the leading edge 26 of the locking flap 15 to enter the pockets 61 and positively lock and retain the cover in its closed position, the abutment edges 4 serving to guide the bevelled edges 3 of the locking flap 15. 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. The construction described permits a positive anchoring or locking action which cannot be obtained by simply abutting the edges of the locking flap with the edges of extension flaps 16.

Numerous modifications may be made in the carton construction previously described which constitutes one embodiment of my invention. The formation of the pockets 61 with respect to the front wall 10 which are adapted to receive the locking flap 15 can be replaced by other equivalent means. For example, flaps 16 may be replaced by separate tabs, of carton stock or other material of sufficient stiffness, which are not connected to the side walls 17. 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 constructed to provide pocket portions 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. Some examples of other cartons with which my improved locking construction may be used are disclosed in Patent Numbers 2,369,385 through 2,369,392, issued February 13, 1945, or the pending application of Harold Riege et al., Serial Number 553,414, filed September 9, 1944, now Patent No. 2,437,835 dated March 16, 1948.

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. My carton is thus particularly adapted for making packages which are required to be completely wrapped with a 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 claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A collapsible carton formed from a single blank suitably cut, scored and glued to provide a foldable tray having front, rear and side walls, a foldable cover hinged to said rear wall, said front wall having an externally folded locking flap hinged at the upper edge thereof, said cover comprising a top wall, side walls and a front wall, said cover side walls each having a flap extension said flap extensions each being cut to provide reentrant recesses in said flap extensions facing the top wall of said cover and having a cut edge opposed to the longitudinal edge of said locking flap, said flap extensions being overlapped and adhered by an adhesive area to inner portions of said cover front wall, said adhesive being spaced inwardly from said cut edge whereby pocket portions are provided in conjunction with the unadhered underlying cover front wall for receiving portions of said locking flap to thereby retain said cover in releasably locked condition.

2. A collapsible carton of paper, cardboard or the like formed from a single blank suitably cut, scored and glued to provide a foldable tray portion having a bottom, a front, a rear and two opposed side walls, end flaps hingedly connected at each end of said front wall, said end flaps being overlapped and adhered to the said adjacent side walls and having free, unadhered portions adapted to slide over said bottom wall and maintain the tray portion in set-up condition, said front wall having an externally folded freely hinged locking flap extending along the upper edge thereof, said locking flap being bevelled inwardly of the carton at the ends thereof, fold lines provided in said side walls to permit collapsing of said tray portion into flat collapsed condition, a foldable cover hinged to the said rear wall adapted to be telescoped over said tray portion for closing same, said cover comprising a top wall, two opposed side walls and a front wall, fold lines provided in said cover side walls to permit collapsing of said cover into flat collapsed condition, said cover side walls being substantially coextensive in area with the opposed side walls of said tray portion, said cover side walls having flap extensions at each forward end thereof and the rear ends of said side walls being free and unattached, said flap extensions each being cut to provide substantially L-shaped recesses facing the top wall of said cover and having aligned cut edges and

intersecting cut edges extending inwardly for a short distance from said aligned edges, said flap extensions being overlapped and adhered by an adhesive area to inner portions of said cover front wall, the adhesive area being spaced inwardly from the said aligned cut edges of said flap extensions, which in conjunction with unadhered, underlying cover front wall portions provide pockets, said flap extensions and hinged locking flap being substantially wholly contained within said cover when the cover is in closed position, portions of said locking flap being arranged to move within said pockets to thereby retain the cover in closed position and to permit swinging open of said cover without rupture of the carton, the walls of said carton being sufficiently flexible to permit flexing thereof without rupture of the material while said hinged locking flap is under compressive stress during opening of the cover part.



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