

March 30, 1943.

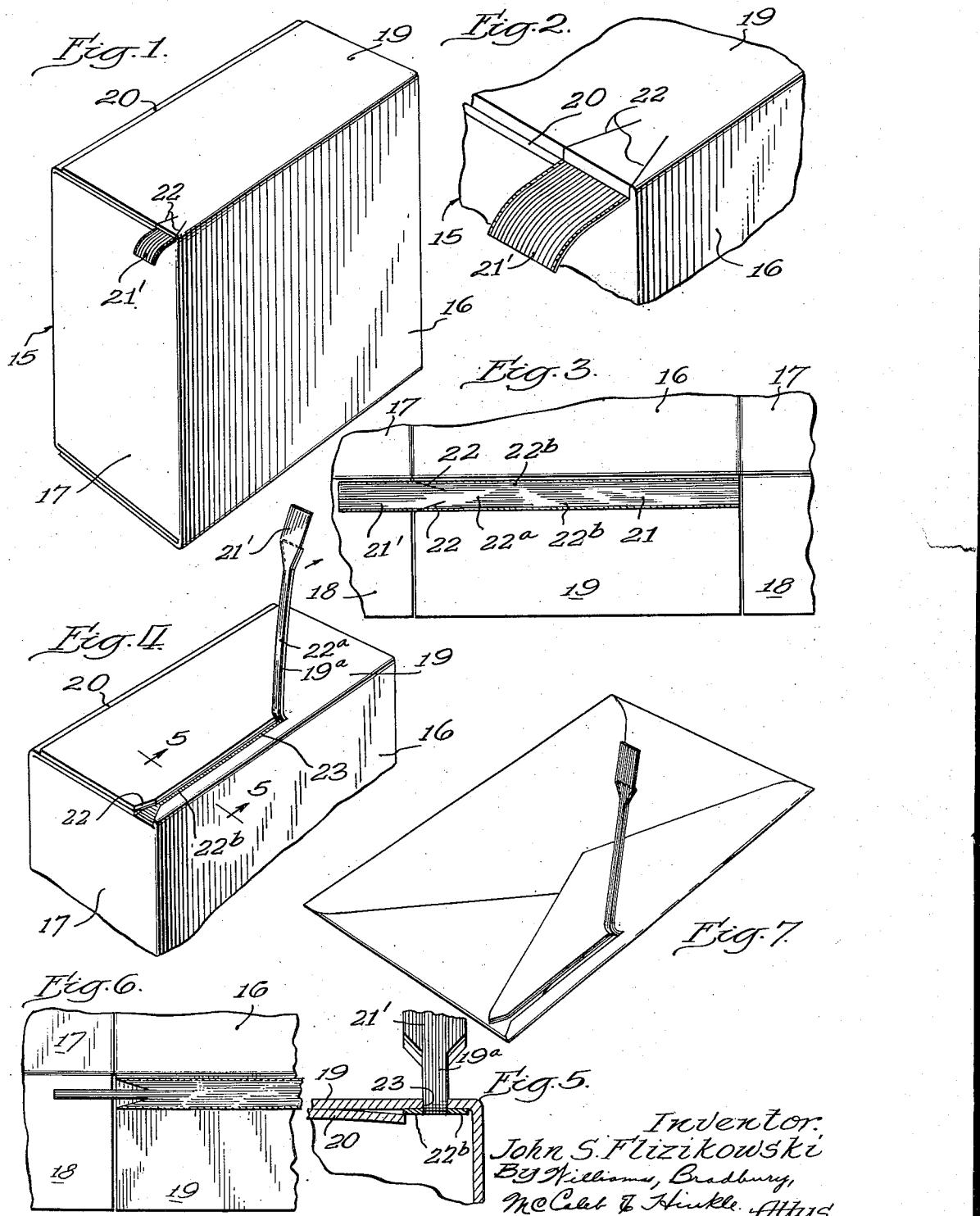
J. S. FLIZIKOWSKI

2,315,116

QUICK OPENING PACKAGE

Filed Sept. 13, 1939

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 8.

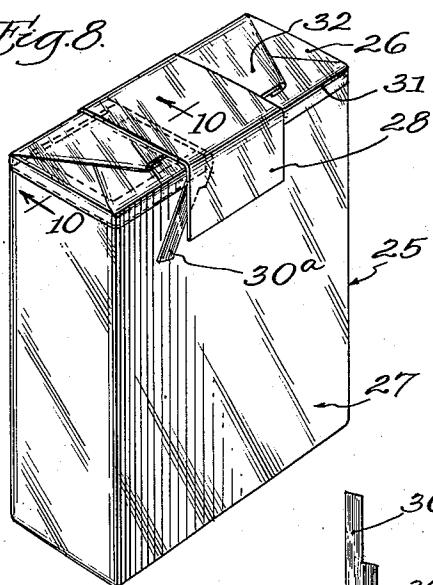


Fig. 9.A.

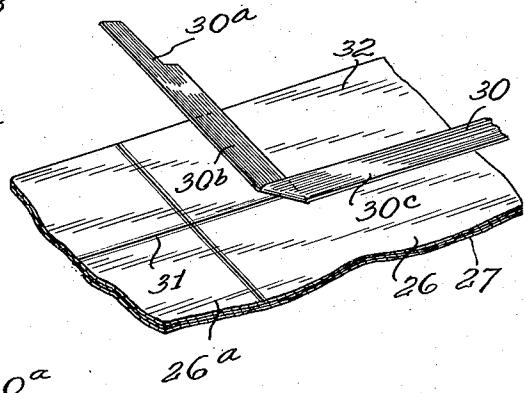


Fig. 9.

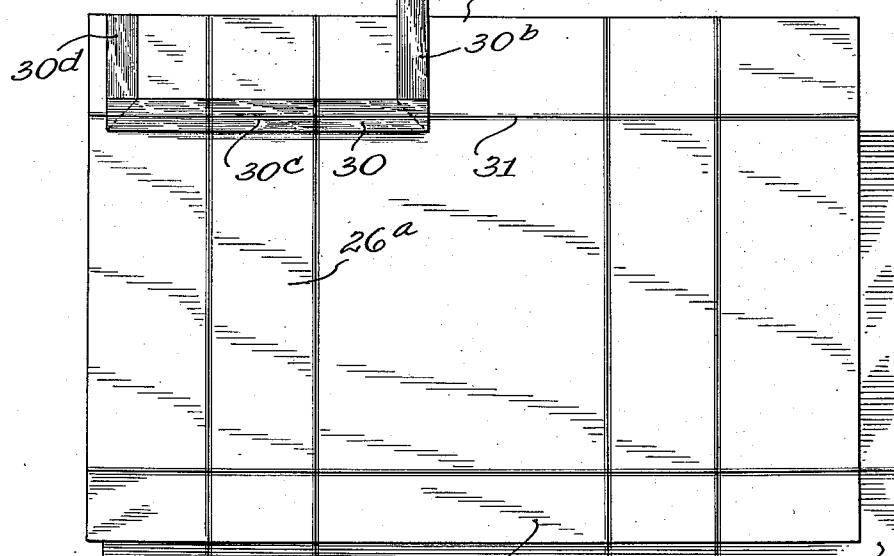
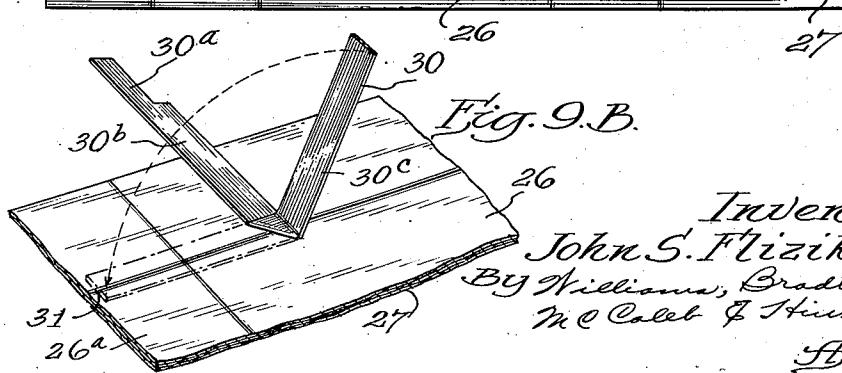


Fig. 9.B.



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3 Sheets-Sheet 3

Fig. 10.

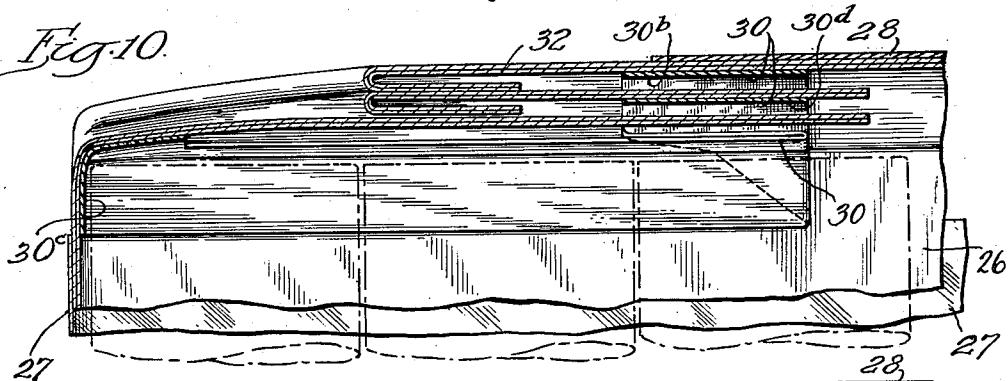


Fig. 13.

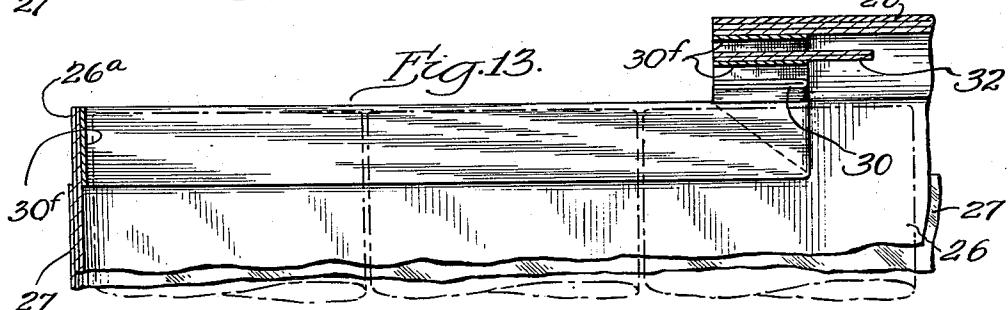


Fig. 11.

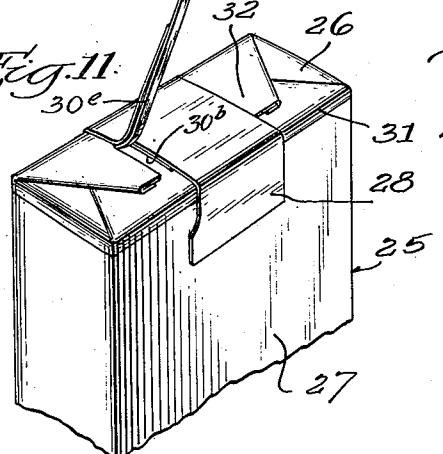


Fig. 12.

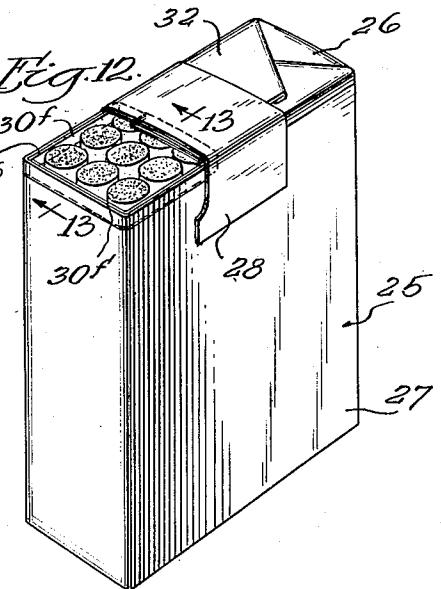
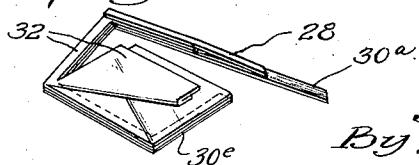


Fig. 12.A.



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UNITED STATES PATENT OFFICE

2,315,116

QUICK OPENING PACKAGE

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Application September 13, 1939, Serial No. 294,605

12 Claims. (Cl. 229—51)

My invention relates to quick opening packages, such, for example, as cartons, cigarette packages, envelopes, and the like.

The opening means employed for my quick opening packages is of the pull string—or more properly, the pull tape—type where the upward pulling of a strand underlying the package paper or cardboard causes the strand to tear a slit in the paper or cardboard either to sever an area of material for an opening or to form a permanent slit through which the contents may be removed.

One object of my invention is to improve such quick opening packages by providing, in conjunction with the opening means, a reinforcement for the margins of the removed area or the margins of the slit, as the case may be.

This objective I realize, in general, by adhering to the underside of the sheet stock to be torn, a tear tape which has considerable longitudinal strength but which is easily split longitudinally. For opening a package, the entire width of the tape is not torn, but only a part of the width, thus leaving at least one lateral margin of the tape adhered to the slit along its margin to serve as a permanent reinforcement. If the opening in the package is to be a slit or narrow slot, as in the instance of an envelope, for example, I tear only the middle band of the tape, leaving both its lateral edges adhered to the respective margins of the slit or slot to serve as a reinforcement for both margins thereof. When an area of the sheet stock is to be removed, as in opening a cigarette package, for example, then I tear out one lateral edge or half of the tape, leaving the other lateral edge or half adhered to the margin of the opening as a permanent reinforcement therefor.

The tearing tape employed in my invention is peculiarly susceptible of being arranged to tear around corners or to other angular changes and to yield a less ragged line of tear in the sheet stock.

Other phases of my invention are concerned with the application of my tearing tape to the peculiar problems of a cigarette package.

The foregoing together with further objects, features and advantages of my invention are set forth in the following description of specific embodiments thereof and are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a package of the carton type embodying one form of my invention;

Fig. 2 is an enlarged detail of one corner of the package of Fig. 1;

Fig. 3 is a view of the inside of the blank for the carton of Fig. 1 before it is made up into a carton;

Fig. 4 is a view similar to Fig. 1 but showing the tearing by the tape progressed to an intermediate stage;

Fig. 5 is a detailed cross-section taken on the line 5—5 of Fig. 4;

Fig. 6 is a view similar to Fig. 3 but showing a modification in which all of the protruding end of the tearing tape is of reduced width;

Fig. 7 is a perspective view of the back side of an envelope incorporating my invention with the tearing tape torn to an intermediate stage;

Fig. 8 is a perspective view of a cigarette package embodying my invention;

Fig. 9 is a layout view of the liner for the cigarette package before it is folded up into a package;

Figs. 9A and 9B are somewhat diagrammatical detailed perspective views illustrating the manner of folding the tape to make a ninety degree turn;

Fig. 10 is a vertical longitudinal section of the cigarette package of Fig. 8 taken on the line 10—10 thereof;

Fig. 11 is a perspective view of the upper portion of the cigarette package of Fig. 8 but showing the start of the tearing;

Fig. 12 is a similar view showing the tearing completed;

Fig. 12A is a perspective view of the panel which was removed from the top of the package by the tearing; and

Fig. 13 is a vertical longitudinal section similar to Fig. 10 but after a panel has been torn from the top of the package and is taken on line 13—13 of Fig. 12.

In Fig. 1 I have illustrated a cardboard carton or box of the type in which breakfast cereals, sugar, soap flakes, or many other products might be packaged. The carton may conveniently be formed, as usual, from a single blank scored and cut to form the front 16, ends 17, end-carried top flaps 18, a front-carried flap 19, and a back-carried flap 20. As is usual in making up the blank into a box, the end flaps 18 are first folded in at the top, then the back-carried flap 20 is folded down and adhered to the end flaps 18, and finally the front-carried flap 19 is folded down upon and secured to the flap 20.

As shown in Fig. 3, a length of tape 21 is adhered to the underside of the flap 19 adjoining

its scored connection to the front 16. The same coating of adhesive applied to the underside of the top flap 19 whereby it is adhered to the flap 20 may be used to adhere the tearing tape 21 to the flap 19. The tape 21 preferably extends from one end of the flap 19 to the other end and is adhered to the flap throughout the length of the flap. The tape 21 is longer than the flap 19, leaving a protruding end 21'. This protruding end 21' overlies the end flap 18 in Fig. 3, but it is not adhered to it. When the blank is folded up into the carton 15, only the end 21' of the tape is exposed.

After the tape 21 is adhered to the flap 19—still referring to Fig. 3—a pair of oblique cuts 22 is made through the flap 19 and also through the tape 21. The cuts extend from the adjacent end edge of the flap 19 obliquely inwardly toward the center line of the tape 21, but the cuts do not extend to the center line. Instead they terminate a spaced distance from the center line of the tape, leaving the central third or fourth of the width of the tape uncut.

If, as is frequently the case in packaging breakfast foods, or other products to be kept moisture-free, the carton is jacketed in wax paper or Cellophane, the jacketing may entirely envelop the protruding end 21' of the tearing tape, in which case the thumb nail is used to break through the jacketing to get a hold on the protruding end of the tape, after which the tearing of the tape may tear a corresponding slit in the jacket. Alternatively, the protruding end 21' of the tearing tape may be somewhat longer, if need be, and interfolded with the jacket to extend outwardly through the sealed folds of the jacket to expose the protruding end 21' without interfering with the moisture-proof seal of the jacket.

To open the package of Fig. 1, the protruding end 21' of the tearing tape is grasped between the thumb and index finger and pulled upwardly longitudinally of the package. Because of the dovetail-like cuts 22, the full width of the tape is not torn through the panel 19. Instead, the tearing width of the tape is confined to the uncut portion between the converging ends of the cuts 22. Thus only a narrow central band 22a of the tearing tape is torn. The lateral margins 22b of the tearing tape, lying outwardly of the central band 22a, remain adhered to the panel 19.

The upward tearing of the narrow central band 22a along the length of the tearing strip 21 tears a narrow band 19a from the panel 19, as shown in Fig. 4. The tearing is continued beyond the intermediate stage of Fig. 4 to the opposite end of the top panel 19, when the central band 22a of the tape and the narrow band 19a of the panel top 19 will have been completely removed from the box. This leaves a slot 23 in the top panel 19 extending the length thereof and adjacent the front of the box, and with the margins of the slot 23 reinforced on the underside by the lateral bands 22b of the tearing tape which remain adhered to the underside of the top panel. As shown in Fig. 5, the tape is preferably so placed that the slot 23 will come beyond the adjacent edge of the flap 20 so that it becomes unnecessary to tear through two thicknesses of flap. If the contents of the package are enclosed in an inner envelope, bag or liner, a knife blade may be inserted through the slot 23 to cut a corresponding slit in the inner package. In this way the top of the front 16 may be bellied out to enlarge the width of the slot 23 in pouring out the contents, especially in the instance of

5 cornflakes, soap chips, or contents of a similar physical nature. Where the contents are not of a nature which permits them to be poured out of such a slot, but instead the top has to be fully opened, the formation of the slot 23, involving the cutting through of the top panel 19, makes it very convenient to lift the flaps 19 and 20 about the scored connection of the latter with the back, and either tearing the end flaps 18 at 10 their scored connection to the ends 17, or pulling loose their adherence to the flap 20. In either case the entire composite or multi-layered top of the box then becomes a hinged cover.

15 The tearing tape 21 is of a type which readily splits longitudinally but not transversely. To this end it may conveniently be a ribbon formed from side-by-side fibrous longitudinal strands which lie coplanar and are not intertwined nor interwoven with transverse threads. Instead 20 they may be held together as a ribbon by some suitable binder or adhesive. If the tearing tape is made from a single strip or ribbon of gummed kraft paper, for example, which does not have the quality of tearing longitudinally much easier than transversely, the central band 22a would be defined by twin longitudinal scoring or perforation lines to predetermine the central band which is to be torn from the lateral band.

25 It will be understood that in the instance of 30 the carton of Fig. 1, the tearing tape might be adhered to the underside of the front 16 adjacent its upper edge rather than on the top panel. Also, the tape may be extended around more than one side or end, or completely around the package. 35 In the instance of some types of packaging it could extend about all four sides at a region near the middle of the package. In this way boxes containing individual portions of breakfast foods, for example, could be so opened that the boxes 40 are cut in the top and bottom halves in accordance with the prevailing custom in restaurants.

45 In Fig. 7 I have shown my invention incorporated in an envelope. The tearing tape is adhered to the inner side of the flap adjacent its folded juncture with the envelope front.

In Figs. 8 to 13 I have shown my invention 50 incorporated in a cigarette package which is otherwise of standard design. The cigarette package 25, shown in Fig. 8, is, pursuant to usual practice, formed by a two-ply liner 26, the outer 55 ply being foil and the inner ply a liner paper. All sides, save the top, are further enclosed by a label sheet 27. The package is sealed at the top by a revenue stamp 28, the ends of which are brought down onto the front and back and adhered to the label sheet 27.

Fig. 9 shows the two-ply liner 26 together 60 with the label sheet 27 positioned in proper position with reference thereto but laid flat before being formed up into a package. The lines of fold indicated in Fig. 9 do not show before the sheets are folded into a package, but I have here indicated them for clarity. Or, alternatively, 65 Fig. 9 can be considered as a plan view of the inside of the sheets after they have been removed from a cigarette package and laid flat.

A tearing tape 30 is shown adhered in U-shaped 70 form to the inside surface of the two-ply liner 26. The tearing tape 30 comprises a protruding end 30a, which extends beyond the upper edge of the liner 26, a first flap leg 30b, a web reach 30c, and a second flap leg 30d, which terminates at the upper edge of the sheet 26. The web reach 75 30c is so placed that it straddles the line of fold

31, which will come at the upper edge of the package and which separates the top flap 32 from the side panels. The legs 30b and 30d of the tearing tape come on portions of the liner 26 which will constitute the top flaps of the package. The tearing tape 30 may be of the same construction as previously described. Those portions of the tearing tape 30 which overlie the liner sheet 26 are adhered thereto. Figs. 9A and 9B illustrate how the tape may be folded to effect a neat and flat ninety degree turn in the tape. The tape is first folded along a forty-five degree line of fold and then refolded along a transverse line of fold in register with the outer edge of the previously adhered leg or reach.

The reach of tape 30c is centered upon the panel 26a, which will constitute one of the narrow side panels of the package, so that the legs 30b and 30d, when the top flaps 32 are folded down, will come into superposed register partially underlying one edge of the revenue stamp 28, as best seen in Fig. 10.

The protruding end 30a of the tearing strip is made a continuation of the leg 30b rather than of the leg 30d, because the leg 30b is on that portion of the top flap 32 which, when the package is made up, comes uppermost of the several superposed portions of the flap 32. Thus, as shown in Fig. 8, the end 30a is exposed at the top edge of the front (or back, as the case may be) panel of the package, rather than being hidden by some superposed portion of the flap 32.

Usually cigarette packages carry an outer jacket of Cellophane or other transparent sheet material. That problem may be met in any of three ways. The user may first remove the Cellophane completely. Or he may dig his thumb nail into the Cellophane to make an opening to get access to the end 30a of the tearing tape. Or, the end 30a may be made considerably longer and extend back across the top of the package beneath the top flap of the Cellophane jacket so that the tip of the end 30a is exposed without the jacket. In either of the latter two instances, the tearing of the tape to open the package will neatly tear out a corresponding opening in the jacket.

To open the cigarette package, the protruding end 30a of the tearing tape is engaged between the thumb and forefinger (which protruding end, it will be noted, is of only half width) and is pulled upwardly and across the top of the package, as shown in Fig. 11. One lateral half 30e is torn from the tape. When the tape has reached the other side of the package, the band 30e is pulled down toward the end of the package, then forwardly along the end edge, then back to the revenue stamp, and then again along the edge of the revenue stamp, about half way toward the other panel. (There is some overlapping of tearing because the legs 30b and 30d overlap.) This entirely removes about one-third of the composite top of the package, which removed rectangular portion is shown in Fig. 12A. Because the tearing tape cleaves so easily in a longitudinal direction, but not transversely, only the half 30e of the tearing tape, as predetermined by the narrow protruding end, is torn from the remainder of the tape and remains more or less fixed to the removed portion shown in Fig. 12A. The other half 30f of the tape remains affixed to the margins of the opening, as shown in Fig. 12A, and constitutes a marginal reinforcement therefor.

The use of a longitudinally splitting tearing tape, one lateral half of which remains on the

package, not only has the advantage of leaving the marginal reinforcement but it produces a trimmer and neater torn edge for the two-ply liner sheet 26. That is because the tape is closely adhered to the sheet and the tape itself will cleave only in a neat straight line, and hence the sheet is likewise torn in a fairly neat straight line.

By the use of this tape and the folding expedient shown in Figs. 9A and 9B to effect flat angular turns, no problem is involved in tearing around corners. Nor is any difficulty encountered because of the fact that the reach 30c of the tearing tape lies along a fold so that one marginal half lies in vertical planes and the other marginal half lies in a horizontal plane. Thus, the line of tear may be placed exactly on the line of fold.

The combination 45° and 90° transverse folds of the tape in forming corners, per Figs. 9A and 9B, are important. It keeps the torn-out half of the tape on the inner margin of the U. If only a 45° fold were used at each corner of the U, the torn-out half of the tape would be on the inside of the U along the first leg, then it would shift over to the outside margin of the U along the web reach, and then shift back again to the inside margin of the U along the second leg. This shifting would not shear the liner at the fold line. There would also be a practical complication in tearing through both corners if formed merely by simple 45° folds, the reason for which is better understood by experimenting than from verbal explanation.

The operation of opening the package to remove a portion of the composite top is in practice a very simple and quick operation. The user need not concern himself with the detail of following the path of the tear; if he merely pulls upwardly on the protruding end 30a and continues to pull upwardly, the tearing will find its own path without further guiding. An incidental advantage of this cigarette opening tape is that, when arranged as shown, it tears out a substantial portion of the revenue stamp, thereby conforming to the statutory requirement that the revenue stamp be destroyed when the contents are removed.

My longitudinally splitting tearing tape adhered to the underside of the sheet—whether arranged to split along a single medial line or to split along two spaced lines to tear out an intermediate band—yields a neater shearing of the sheet than does an ordinary tear thread, and it avoids the jamming so frequently encountered with ordinary tear threads. Because it may easily be lead about turns, my splitting tearing tape may be used for forming narrow slots of desired shape in tearable sheets. The predetermined shape which the slot will take where the tape is torn is not visible from the outer side of the sheet.

While I have illustrated and described these specific embodiments of my invention, I contemplate that many changes and substitutions may be made without departing from the scope or spirit of my invention. For example, the tearing tape may be split in half, rather than in thirds, in application to a carton such as shown in Fig. 1, or, conversely, the tearing tape may be incorporated in a cigarette package, although it might not be of advantage to make the latter substitution.

I claim:

1. A tearable package wall having adhered flatwise to its inner side at an unslotted region thereof, a self-tearing tear tape composed of parallel

longitudinal strands so held together that the tape readily splits longitudinally but not transversely, a portion of the tape being exposed tabwise with only a narrow band of the longitudinal strands extending from the tab portion into the adhered main reach of the tape, for the purpose described.

2. The combination with a tearable sheet of a self-tearing tear tape adhered flatwise to the reverse side of the sheet at an imperforate region thereof, the tape being preformed to render it readily tearable longitudinally along a line parallel with its length and inwardly from its lateral edges, the tape presenting a terminal tab and being cut near the base of the tab to sever the tape between the preformed line and a lateral edge whereby outward pulling of the tab will sever one lateral band of the tape along the preformed line, also shearing the sheet along said preformed line, and leaving the remaining lateral band of the tape adhered to the sheet.

3. The combination with a tearable sheet of a tearing tape adhered flatwise to the reverse side of the sheet, the tape being preformed to render it readily tearable longitudinally along a pair of laterally spaced lines which are spaced inwardly from the respective lateral margins of the tape, an end of the tape being exposed as a tab and the tape being cut adjacent the base of the tab between the respective preformed lines and the respective marginal edges, whereby outward pulling of the tab will tear the central longitudinal band of the tape defined by the two preformed lines from the marginal band and tear a slot in the sheet, leaving the marginal bands adhered to the sheet at the margins of the slot as reinforcements therefor.

4. The combination with a carton formed from a sheet of paper stock to provide a plurality of walls, of a tearing tape adhered flatwise to the inner side of the sheet stock along one wall of the carton, the tearing tape being formed of a multiplicity of parallel strands held together as a flat tape to split readily longitudinally but not transversely, one end of the tape being exposed as a tab and the tape, adjacent the base of the tab, being cut transversely inwardly from one lateral margin part way across the tape, whereby, when the tab is pulled outwardly, only the uncut width of the band is torn from the tape and shears the sheet, leaving the remainder of the tape adhered to the sheet as a marginal reinforcement at the line of shear.

5. The method of forming and subsequently opening a package which consists in preassembling a multiplicity of parallel longitudinal strands into a flat single ply tape which splits readily longitudinally but not transversely, forming tearable sheet stock into a package, adhering the tape flatwise to the inner side of an imperforate wall-forming portion of the sheet stock, leaving an end of the tape exposed as a tab for manual engagement, cutting the tape part way transversely from a lateral margin and then, for subsequently opening the package, pulling the tab outwardly to tear its uncut width from the remainder of the tape and thereby shearing the overlying sheet, leaving the remaining width of the tape adhered to the sheet as a marginal reinforcement at the line of shear.

6. A cigarette package comprising a rectangular sheet folded into block shape with panels intermediate the top and bottom margins constituting the four side panels and the top and bottom margins being infolded as superposed flaps to constitute the top and bottom walls of the package,

of a tearing tape formed from a multiplicity of longitudinal strands held together as a flat tape which readily splits longitudinally between adjacent strands but does not readily split transversely, the tape being adhered flatwise to the inner side of the sheet and applied thereto in U-form with the web reach of the U elongated and lying along the fold between the side panels and top flaps and extending across one side panel of the package and continuing on both sides thereof, and with the legs extending from the ends of the web reach to the upper edge of the sheet, one of the legs protruding as a tab beyond the upper edge of the sheet for manual engagement, the tape being severed adjacent the protruding tab whereby outward pulling of the tab will split the tape longitudinally and shear the sheet, cutting therefrom an end portion of the top and leaving the remainder of the tape adhered to the sheet as a marginal reinforcement for the opening thus cut in the top.

7. The combination according to claim 6 in which a revenue stamp extends across the top and downwardly upon the opposite side of the package in overlying relation to a reach of the tape to be torn, whereby the tearing partially destroys the revenue stamp.

8. A cigarette package formed at least in part by a sheet folded to constitute the four sides of the package and with its upper marginal bands folded inwardly as superposed flaps to constitute the top of the package, and a tearing tape preformed readily to split down its middle longitudinally of the tape but not readily to split transversely, the tape being adhered flatwise to the inside of the sheet at least in part along and straddling the line of fold between the top flaps and side panels, one end of the tape being available as a tab for manual engagement, outward pulling of the tab splitting the half of the tape which is carried by the flap portion from the remaining half of the tape and shearing the flap portion to open the package and leave the other half of the tape adhered to the sheet as a marginal reinforcement for the opening.

9. The combination with a package-forming sheet of a longitudinally splitting tearing tape adhered flatwise to the inner face of the sheet in the form of a U with the web reach of the U extending parallel with, but spaced inwardly from, one margin of the sheet and the two legs of the U extending from the ends of the web reach to the said edge of the sheet, and one of the legs protruding beyond the edge of the sheet as a tab, the tape having a line of severance near the tab for resolving an outward pull on the tab into a longitudinal splitting of the tape and a tearing of the sheet along the line of split, said legs being joined as square corners with the web reach by means of 45 degree and 90 degree folds across the tape at the corners, substantially as set forth.

10. The method of forming and subsequently opening a cigarette package which consists in wrapping a sheet into cigarette package form to form the four sides of the package, infolding the upper margin as superposed flaps to form the top of the package, and adhering a longitudinally splitting tape to the inside of the sheet along the line of fold between the tab and side panels adjoining one end of the package and transversely of the flap portion with an end of the tape exposed as a tab, and then subsequently opening the package by pulling outwardly upon the tab to split the tape longitudinally and thereby shear the flap of the sheet to sever one end of the top, leaving one half of the split tape adhered to the

sheet adjoining the severed portion of the top to constitute a marginal reinforcement for it.

11. In a package, a wall-forming tearable sheet having an exposed edge, a longitudinally splitting tear tape adhered to the inner face of the sheet and extending inwardly from the edge, and also protruding beyond the edge as a tab, and a pair of cuts through the sheet and tape extending convergingly inwardly from points at the edge of the sheet at the respective lateral edges of the tape and terminating a spaced distance apart intermediate the lateral edges of the tape whereby, when the tab is pulled outwardly, the tape is constrained to split longitudinally along two lines substantially in register with the respective termini of the cuts to split out a central longitudinal band of the tape and shear the sheet, leaving the outer margins of the tape adhered to the inner side of the sheet along the margins of the shear as a marginal reinforcement therefor.

12. In combination with an imperforate tearable sheet adapted to form part of a package or the like, a tear tape adhered at a continuous region

5 of the sheet flatwise to that face of the sheet which will be inside the package, and an exposed tab on the tape adapted to be grasped for an outward tearing pull upon the tape progressively along its length, starting at the tab, whereby to shear the sheet open for access into the interior, the tear tape being of integral construction and preformed to render it readily and cleanly severable, as an incident to said tearing pull, along a predetermined longitudinal line extending from said tab, and the tab being structurally divorced from longitudinal connection with at least one longitudinal band of the adhered tape but structurally connected with another longitudinal band of the adhered tape alongside the first mentioned band, so that only the connected longitudinal narrow band of the tape carrying said tab will tearingly sever the sheet and carry some of the sheet adhered to the band while the divorced band of the tape remains adhered to the sheet as reinforcement along the margin of its severance.

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