Dec. 14, 1943. F. L. BROEREN ET AL 2,336,842

CARTON

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FIG. 1.

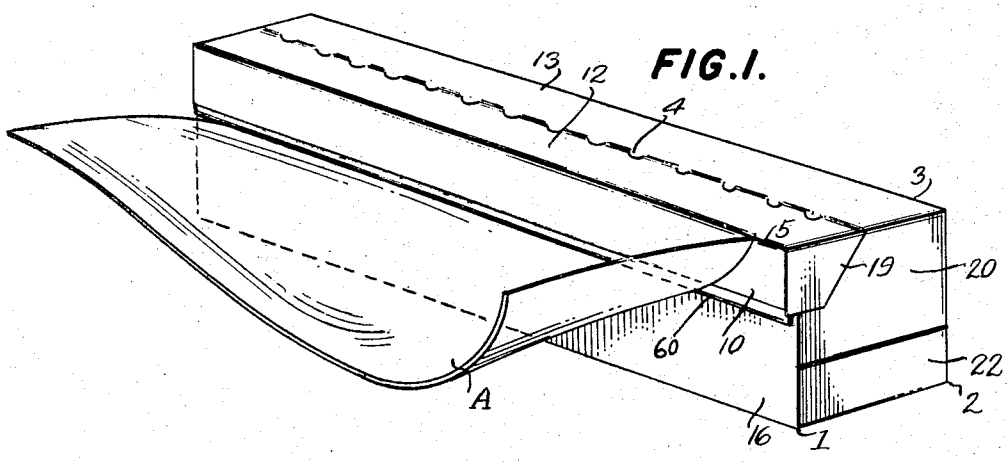


FIG. 2.

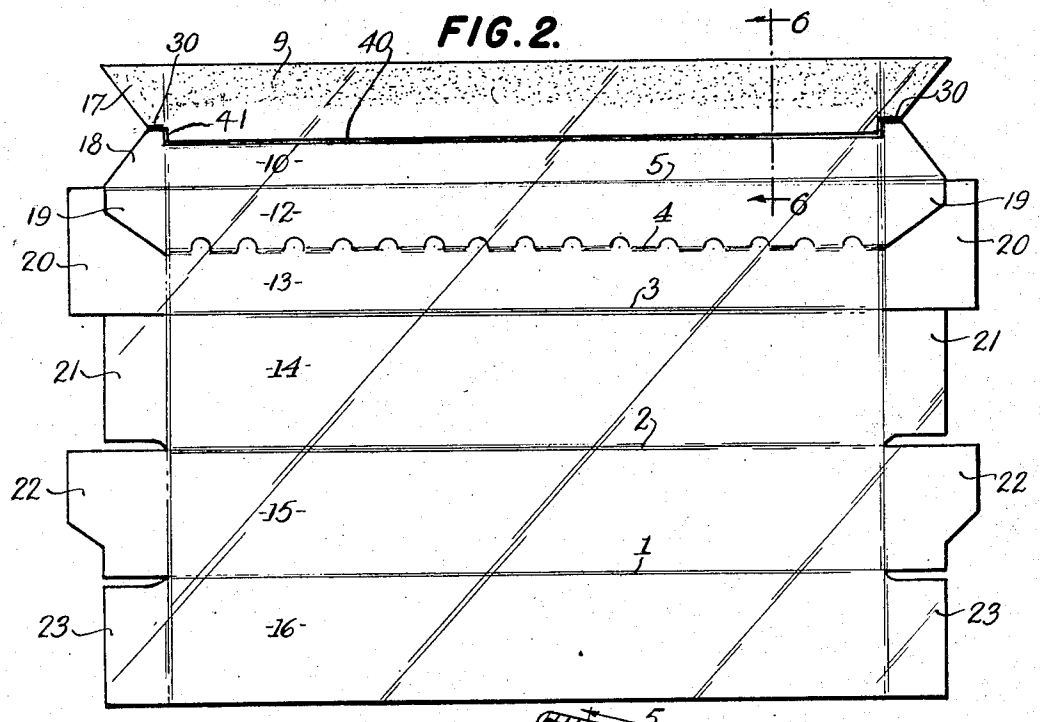


FIG. 3.

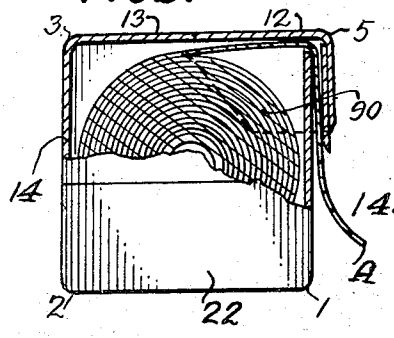
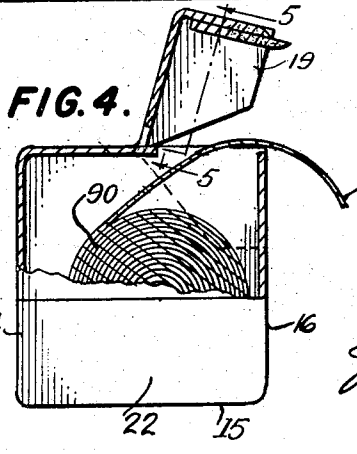


FIG. 4.



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FIG. 5.

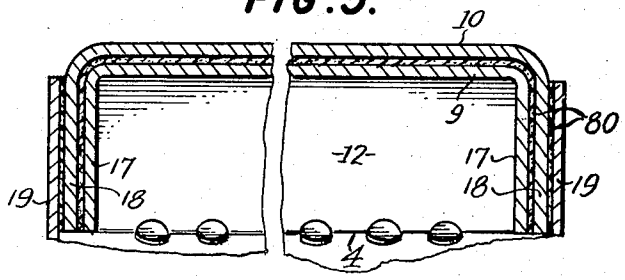


FIG. 6.

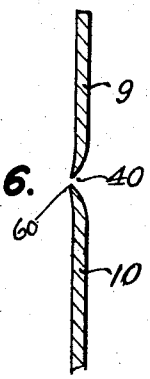


FIG. 7.

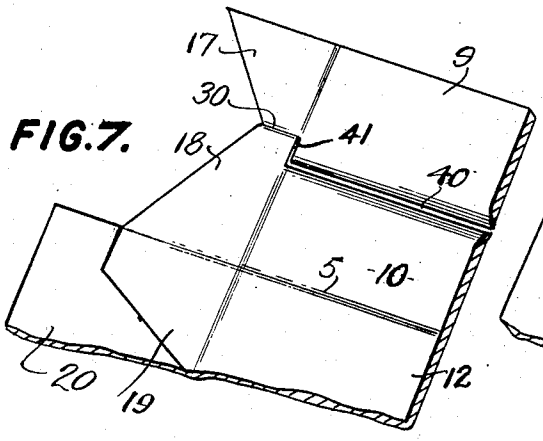


FIG. 8.

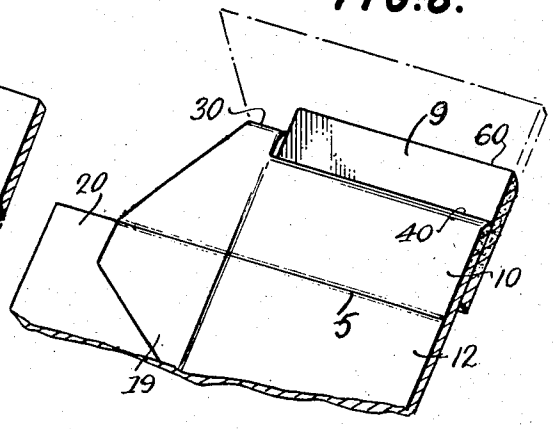
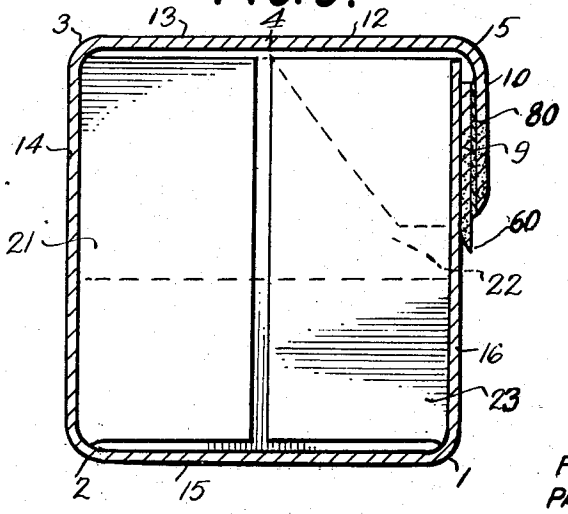


FIG. 9.



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CARTON

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FIG 10.

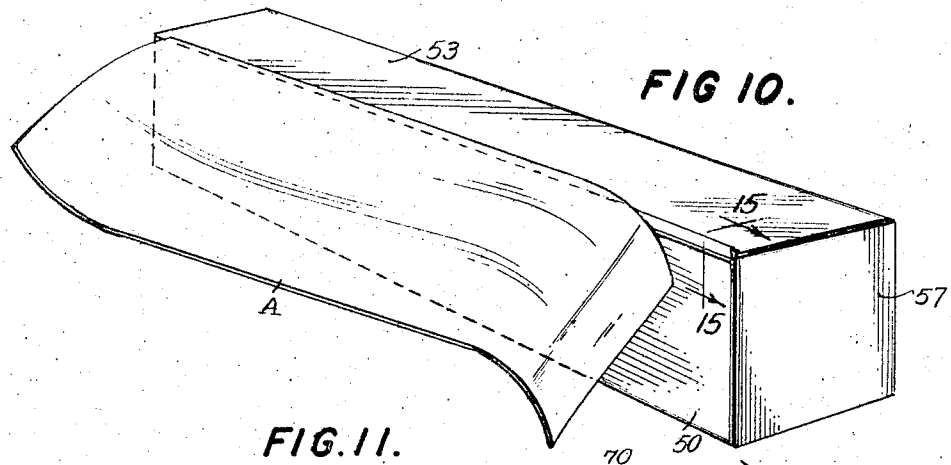


FIG. 11.

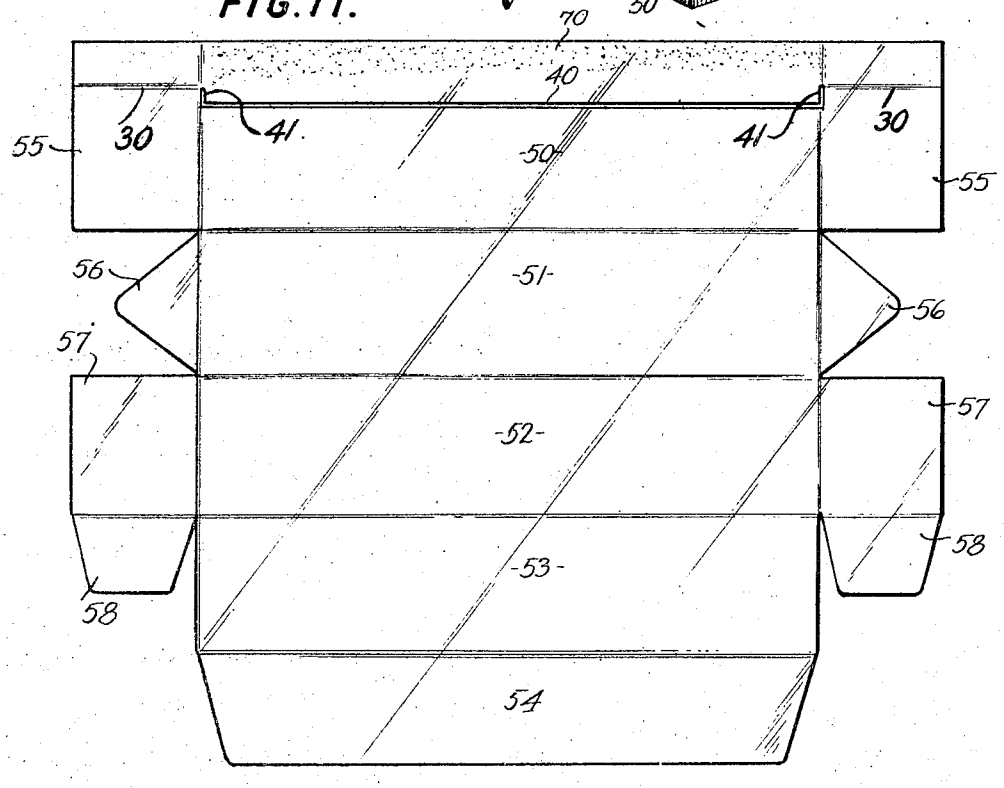
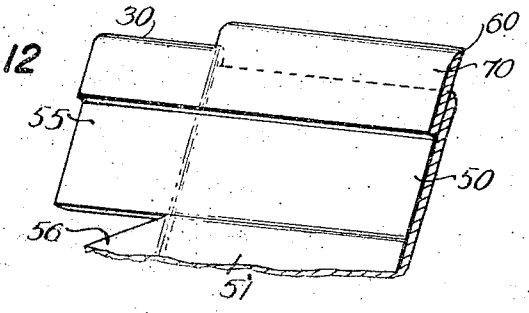


FIG. 12



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FIG. 13.

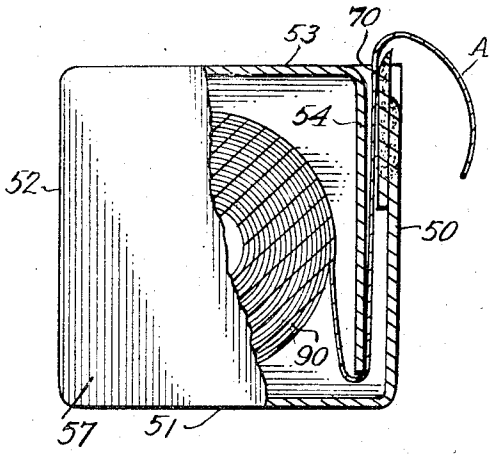


FIG. 14.

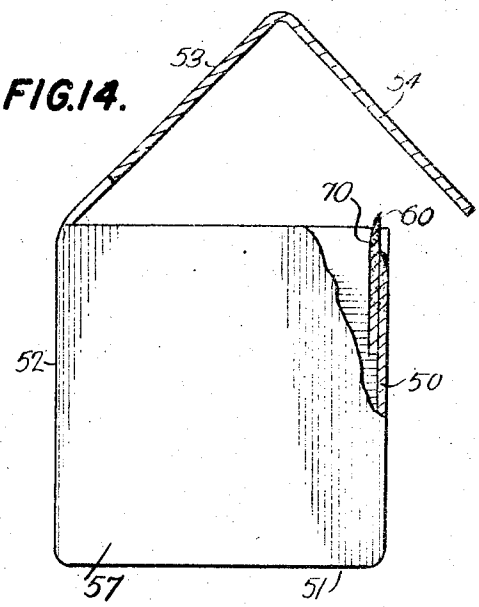


FIG. 15

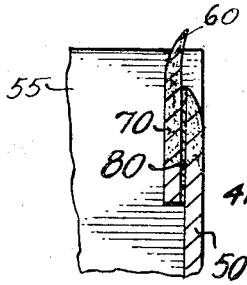


FIG. 16.

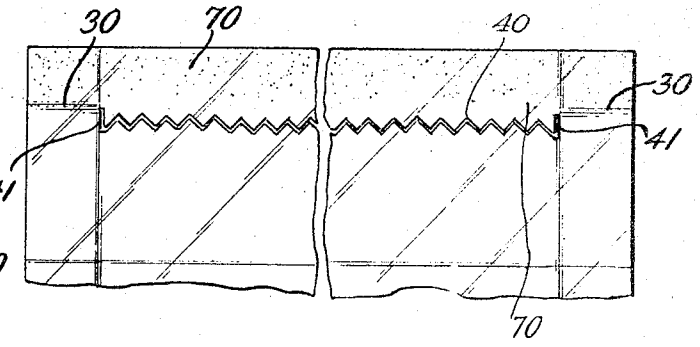


FIG. 18.

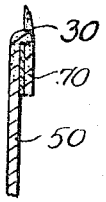
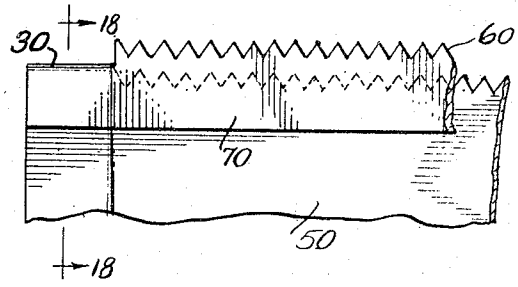


FIG. 17.



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Patented Dec. 14, 1943

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UNITED STATES PATENT OFFICE

2,336,842

CARTON

Frank L. Broeren and Paul E. Fischer, Neenah, Wis., assignors to Marathon Paper Mills Company, Rothschild, Wis., a corporation of Wisconsin

Application March 27, 1943, Serial No. 480,812

12 Claims. (Cl. 206—58)

This invention relates to a carton for retaining a roll of sheet material and dispensing lengths therefrom, said carton being formed from a single integral blank and provided with a cutting edge of novel construction formed from the blank itself for cutting desired lengths of sheet material.

More specifically, this invention relates to a dispensing carton for retaining a roll of waxed paper and other types of frangible sheet materials from which suitable lengths of the sheet material may be dispensed from the carton.

Hitherto it has been the common practice to provide dispensing cartons of this type with metal cutting blades affixed to a free wall portion of the carton to provide a cutting edge for cutting lengths of sheet material from the roll retained in the carton. The manufacture of such cartons provided with metal cutting blades entailed considerable expense not only on account of the cost of the material involved, but also on account of the additional operations required in suitably affixing the metal cutting blade to the carton. Furthermore, the use of metal cutting blades was a source of possible injury to the user of the carton. Such cartons also could not be disposed of or destroyed readily when empty on account of the metal cutting blade.

According to the present invention, the aforementioned difficulties and disadvantages have been fully overcome. A carton is provided which is formed from a single integral blank of cardboard and the like which is suitably cut and scored to form a receptacle for receiving and retaining a roll of sheet material, one of the walls thereof being provided with a cutting edge for sheet materials by providing the wall portion with a continuous cut score extending the full length of the wall portion, the wall portion being folded back along the cut score to position an exposed cut edge of the folded portion in offset relation to the congenetic cut edge of the wall portion, the folded-back portion being adhered to the contacted inner face of the wall portion.

Other further details of the invention will be apparent from the following specification and appended drawings.

Referring to the drawings,

Figure 1 is a perspective view of one form of a carton construction embodying the novel features of the present invention,

Figure 2 is a plan view of the integral blank from which the carton shown in Figure 1 is formed, the face of the blank shown forming the interior surface of the carton,

Figure 3 is an end view of Figure 1, partly in section,

Figure 4 is an end view of the same carton showing the hinged cover portion in open position,

Figure 5 is an enlarged sectional view taken on lines 5—5 of Figure 4,

Figure 6 is an enlarged sectional view taken on lines 6—6 of Figure 2,

Figure 7 is an enlarged fragmental perspective view of the upper left hand portion of the carton blank of Figure 2 showing the slit score for forming the cutting edge,

Figure 8 is a view of the blank portion shown in Figure 7 with the cutting panel folded back to provide an offset cutting edge,

Figure 9 is an enlarged transverse sectional view of the carton showing the cutting edge construction,

Figure 10 is a perspective view of another type of carton construction embodying the cutting edge of the present invention,

Figure 11 is a plan view of the blank from which the carton shown in Figure 10 is made, the face of the blank shown forming the interior surface of the carton,

Figure 12 is an enlarged fragmental perspective view of the upper left portion of the blank of Figure 11 showing the cutting panel folded back and adhered to the body of the blank,

Figure 13 is an end view of the carton shown in Figure 10 in partial section,

Figure 14 is a similar view showing the cover in open position,

Figure 15 is an enlarged fragmental sectional view of the cutting edge taken on lines 15—15 of Figure 10,

Figure 16 is a fragmental plan view of a blank having a modified saw-tooth cut score line for forming the cutting edge,

Figure 17 is a fragmental plan view of the blank of Figure 16 showing the cutting panel folded back to provide an offset saw-toothed cutting edge, and

Figure 18 is a sectional view taken on lines 18—18 of Figure 17.

Referring to the drawings, Figure 1 shows a carton formed from an integral single blank shown in Figure 2 for retaining a roll of sheet material and for dispensing lengths A of the sheet material by cutting same against a cutting edge 60 provided in the carton. The blank may be formed of any suitable material, such as cardboard and the like, suitably cut and scored to provide a receptacle portion for retaining the roll

90 of sheet material. The receptacle portion is formed by folding the blank along score lines 1 and 2 to form a front panel 16, a bottom panel 15 and a rear panel 14. These panels are provided with hinged end flaps indicated by numerals 21, 22, and 23 hinged respectively to the rear, bottom and front walls.

In forming the receptacle portion, flaps 21 and 23 are folded in opposed relation and flaps 22 are then folded thereover and glued. A top panel 13 is connected to the rear wall 14 along score line 3. Panel 13 is provided with hinged end flaps 20. After the roll 90 of sheet material is placed in the receptacle, previously described, top panel 13 is folded over on score line 3 to close the top of the receptacle and the end flaps 20 are then folded over the ends of the receptacle and adhered thereto in the position shown in Figure 1.

A cover is hingedly connected to the top panel 13 along a hinge line 4. The hinge line may be of any suitable construction, but it is preferred to use a hinge line having alternately arranged semi-circular cuts and creased score lines as disclosed in Broeren Patent No. 2,303,253 November 24, 1942. The cover is formed of a closure panel 12 having end flaps 19. The closure panel normally extends in the same plane as the fixed top panel 13 and can be hinged upwardly in the position shown in Figure 4, whereby access to the receptacle may be had if necessary for grasping the end A of the web of sheet material for dispensing purposes. A cutting panel 10 is hingedly connected to the closure panel along score line 5. The cutting panel is provided with end flaps integrally hinged thereto. These end flaps are indicated by numerals 17 and 18 and are adapted to be folded back on themselves along score line 30 as shown in Figures 2, 7 and 8, and are adhered to the overlapped flap portions. The cutting panel is provided with a cut score line 40 which extends the full length of the panel 10 and is intersected at the ends thereof by short slits 41 extending at right angles thereto and terminating at the score lines 30.

In forming the cutting edge for the web of sheet material, the cutting panel 10 is folded back on itself on the score lines 30 shown in enlarged view in Figure 7 to assume the position indicated in Figure 8. The cut edge 60 of the folded back portion will then be positioned in offset relation to the congenetic cut edge of panel 10.

The folded back portion 9, together with the hinged end flap portions 17 are glued or secured in any suitable manner to the overlapped inner face of the cutting panel 10. The end flap portions 17 and 18 are cut in such contour as to coincide throughout their area when they are superposed. These superposed end flaps 17 and 18 are then folded over and adhered to the end flaps 19 by an adhesive 19, as shown in Figure 5, to form side ends for the cover in the relation shown in Figure 1. It will be noted that these side ends have a 3-ply thickness thus giving very rigid ends. The broad features of the end flap construction are covered in Sullivan et al. Patent No. 2,314,849, March 23, 1943. When the carton is produced by automatic machinery it is preferred to fold the panel portion 9 and adhere it to the overlapped body of the blank prior to feeding the blanks to the automatic carton making machine.

An important feature of the present invention relates to the cutting edge which is formed from the blank shown in Figure 2. The cut score line 40 is positioned in offset relation to the hinge score lines 30 provided in the end flaps of the cutting panel 10 as clearly shown in Figures 8 and 9. When the panel portion 9 is folded back so as to hinge along the score lines 30, the cut edge of panel 9 will be offset in relation to the panel 10 as shown in Figure 8. The cut score line 40 is preferably formed by applying the cutting knife to the outer face of the blank and pushing the fibers toward the inner face of the blank, as shown in Figure 6, whereby a very sharp cutting edge 60 is formed in each of the congenetically cut edges in the cutting panel 10. As shown in Figure 8, the exposed edge 60 of the panel portion 9 has a sharp knife-edge contour so that the sheet material can be readily cut by a pulling action on the end of the web against the cutting edge in the manner shown in Figure 1. The panel portion 9 also serves as a reenforcing extension when it is folded back and adhered to the panel 10 and serves to stiffen the full length of the cutting panel so as to resist bending and distortion when the carton is used for dispensing purposes. As shown in Figure 3, the cutting panel 10 is adapted to overlap the adjoining front wall 16 of the receptacle and the sheet material is passed for withdrawal from the roll between the front panel 16 and the overlapping cutting panel 10.

We have found it advantageous to coat or impregnate the exposed cutting edge 60 with an indurating material, such as molten sulphur, synthetic resins, waxes, lacquers, and the like, for stiffening the fiber material of the blank at and adjacent the cutting edge, whereby a rigid cutting edge is provided which will not soften in humid weather or become dull in use.

It is to be understood that the cutting edge construction, previously described, is not limited to the particular carton construction described, but may be embodied in any suitable dispensing carton where a cutting edge is required. Numerous changes and modifications may also be made embodying the principle of this cutting edge construction. For example, the relative positions of the score lines 30 and cut score line 40 may be varied to provide any desired amount of offset for the cutting edge in relation to the shear panel. Also if desired, the score lines 30 and cut score line 40 may be reversed from the position shown in Figure 2 so that when panel portion 9 is folded back, the exposed cut edge of panel 10 will be offset in relation to panel 9, the free edge thereof providing the cutting edge.

Figures 10 to 15 show another type of dispensing carton construction formed also from a single integral blank. The blank is suitably cut and scored to provide a front panel 50, a bottom panel 51, a rear panel 52, a closure panel 53 and an extension panel 54. End flaps 55, 56 and 57 are hingedly connected to the front, bottom and rear panels, respectively. Front panel 50 is provided with a cut score line 40 extending the full length of the panel 50. The cut score line 40 is formed in the manner previously described in connection with the carton construction shown in Figure 1, and is intersected at the ends thereof by short slits 41 terminating at the score lines 30. End flaps 55 are provided with score lines 30 which are offset in relation to the cut score line 40. In forming a dispensing carton from this blank, the panel portion 70 is folded back on the score lines 30 and adhered to the inner face of the front wall in the relation shown in Figure 12. In view of the offset relation of

the score line 30 to the cut score line 40, the cut edge 60 of panel 70 will be offset in relation to the cut edge of the front wall 50, thereby providing a cutting edge for the end A of the web of sheet material.

In forming the carton from the blank as shown in Figure 11, the front and rear panels are folded up at right angles to the bottom panel and their respective end flaps are superposed and glued together, preferably with the end flaps 56 positioned intermediate the end flaps 57 and 55. The portions 58 of flaps 57 are adapted to be folded over the open end of the receptacle so formed. The cover 53 may then be folded over in the position shown in Figure 13 and the extension flap 54 is then inserted within the receptacle. The web of sheet material is adapted to be withdrawn from the carton between the front wall 50 and the inserted flap extension 54. The cutting edge may also be indurated in the manner previously described.

A further modification of the cutting edge is shown in Figures 16 to 18 wherein the cut score line 40 has a zig-zag or saw-tooth contour so that when the panel portion 70 is folded back in offset relation as shown in Figure 17 a saw-tooth cutting edge will be provided in the carton.

Having thus fully disclosed the novel and essential features of our invention we claim:

1. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising a cutting edge for the sheet material formed by providing a wall portion with a continuous cut score extending the full length of the wall portion, the said wall portion being folded back to position the cut edge of the folded portion in exposed offset relation to the congenetic cut edge of the wall portion, and said folded-back portion being secured to the inner face of said wall portion.

2. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising a cutting edge for the sheet material formed by providing a wall portion with a continuous cut score extending the full length of the wall portion, the said wall portion being folded back to position the cut edge of the folded portion in exposed offset relation to the congenetic cut edge of the wall portion, said exposed edge being treated with an indurating material, and said folded-back portion being secured to the inner face of said wall portion.

3. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising a cutting edge for the sheet material formed by providing a wall portion with a continuous cut score extending the full length of the wall portion, the said wall portion being folded back to position the cut edge of the folded portion in exposed offset relation to the congenetic cut edge of said wall portion, said exposed cut edge being knife-edged, and said folded-back portion being secured to the inner face of said wall portion.

4. A carton for retaining a roll of sheet material and dispensing lengths of said sheet material formed from an integral blank comprising a receptacle portion for retaining the roll of sheet material and a cover hingedly connected to the receptacle portion, said cover being formed of a closure panel and a cutting panel overlapping an adjoining side between which side and cutting panel the sheet material is passed for withdrawal from said roll, a cutting edge on said cutting panel formed by providing said cutting panel with a continuous cut score extending the full length of said cutting panel, said cutting panel being folded back to position the cut edge of the folded panel in offset relation to the congenetic cut edge of the closure panel to provide a cutting edge, and said folded-back portion being secured to the overlapped inner face of said closure panel to reenforce same.

5. A carton for retaining a roll of sheet material and dispensing lengths of said sheet material formed from an integral blank comprising a receptacle portion for retaining the roll of sheet material and a cover hingedly connected to the receptacle portion, said cover being formed of a closure panel and a cutting panel overlapping an adjoining side between which side and cutting panel the sheet material is passed for withdrawal from said roll, a cutting edge on said cutting panel formed by providing said cutting panel with a continuous cut score extending the full length of said panel, said panel being folded back to position the cut edge of the folded panel in exposed and offset relation to the congenetic cut edge of the closure panel to provide a cutting edge, said offset cut edge being treated with an indurating material, and said folded-back portion being secured to the overlapped inner face of said closure panel to reenforce same.

6. A carton for retaining a roll of sheet material and dispensing lengths of said sheet material formed from an integral blank including ends and sides, one of said sides including a fixed panel and a closure hinged thereto, said closure comprising a closure panel hingedly connected to said fixed panel and normally extending in the same plane as the fixed panel, a cutting panel adjacent said closure panel and adapted to overlap an adjoining side between which side and cutting panel the sheet material is passed for withdrawal from the roll, a cutting edge on said cutting panel formed by providing the cutting panel with a continuous cut score extending the full length of said panel, said panel being folded back to position the cut edge of the folded cutting panel in offset relation to the congenetic cut edge of the said panel to provide a cutting edge, and said folded-back portion being secured to the inner overlapped face of said panel to reenforce same.

7. A carton for retaining a roll of sheet material and dispensing lengths of said sheet material formed from an integral blank including ends and sides, one of said sides including a fixed panel and a closure hinged thereto, said closure comprising a closure panel hingedly connected to said fixed panel and normally extending in the same plane as the fixed panel, end flaps hingedly connected to said closure panel, a cutting panel adjacent said closure panel and adapted to overlap an adjoining side between which side and cutting panel the sheet material is passed for withdrawal from the roll, said cutting panel having hinged side flaps and a cutting edge for the sheet material, said cutting panel having a reenforcing extension disconnected from the cutting panel along a cut score extending the full length of cutting panel and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score line, said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the inner overlapped face of the cutting panel, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the cutting panel to pro-

vide a cutter edge, the end flaps hingedly connected to the said closure panel and cutting panel being superposed and fastened together to form three-ply reenforced ends for said closure.

8. A carton for retaining a roll of sheet material and dispensing lengths of said sheet material formed from an integral blank including ends and sides, one of said sides including a fixed panel and a closure hinged thereto, said closure comprising a closure panel hingedly connected to said fixed panel and normally extending in the same plane as the fixed panel, end flaps hingedly connected to said closure panel, a cutting panel adjacent said closure panel and adapted to overlap an adjoining side between which side and cutting panel the sheet material is passed for withdrawal from the roll, said cutting panel having hinged side flaps and a cutter edge for the sheet material, said cutting panel having a reenforcing extension disconnected from the cutting panel along a cut score extending the full length of cutting panel and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score lines, said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the inner face of the cutting panel, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the cuting panel to provide a cutter edge, the said cut edge being treated with an indurating material, and the end flaps hingedly connected to the said closure panel and cutting panel being superposed and fastened together to form three-ply reenforced ends for said closure.

9. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising bottom, front, rear, and end walls, the front wall having hinged side flaps and a cutting edge for the sheet material, said front wall having a reenforcing extension disconnected from the front wall along a cut score extending the full length of the front wall and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score line, and said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the overlapped inner face of the front wall, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the wall portion to provide an exposed cutting edge, for cutting lengths of sheet material.

10. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising bottom, front, rear, and end walls, the front wall having hinged side flaps and a cutting edge for the sheet material, said front wall having a reenforcing extension disconnected from the front wall along a cut score extending the full length of the front wall and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score line, said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the overlapped inner face of the front wall, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the wall portion to provide a cutting edge for cutting lengths of sheet material, and said cut edge being treated with an indurating material.

11. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising bottom, front, rear, and end walls, the front wall having hinged side flaps and a cutting edge for the sheet material, said front wall having a reenforcing extension disconnected from the front wall along a cut score extending the full length of the front wall and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score line, said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the overlapped inner face of the front wall, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the wall portion to provide a cutting edge, and said cutter edge being knife-edged in contuor.

12. A carton for retaining a roll of sheet material and dispensing lengths therefrom formed from an integral blank comprising bottom, front, rear, and end walls, the front wall having hinged side flaps and a cutting edge for the sheet material, said front wall having a reenforcing extension disconnected from the front wall along a cut score extending the full length of the front wall and integrally connected to the said side flaps along hinge score lines positioned in offset relation to said cut score line, the side flaps being folded back on said score lines and adhered to the overlapped flap portions, said reenforcing extension being folded on said hinge score lines inwardly upon and secured to the overlapped inner face of the front wall, whereby the cut edge of said reenforcing extension is offset in relation to the congenetic cut edge of the wall portion to provide a cutting edge, said cutter edge being knife-edged in contour and treated with an indurating material.

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