Dec. 18, 1956 W. J. ABRAMS ET AL 2,774,529

STAPLE SEALED CORRUGATED BOX

Filed May 15, 1953 2 Sheets-Sheet 1

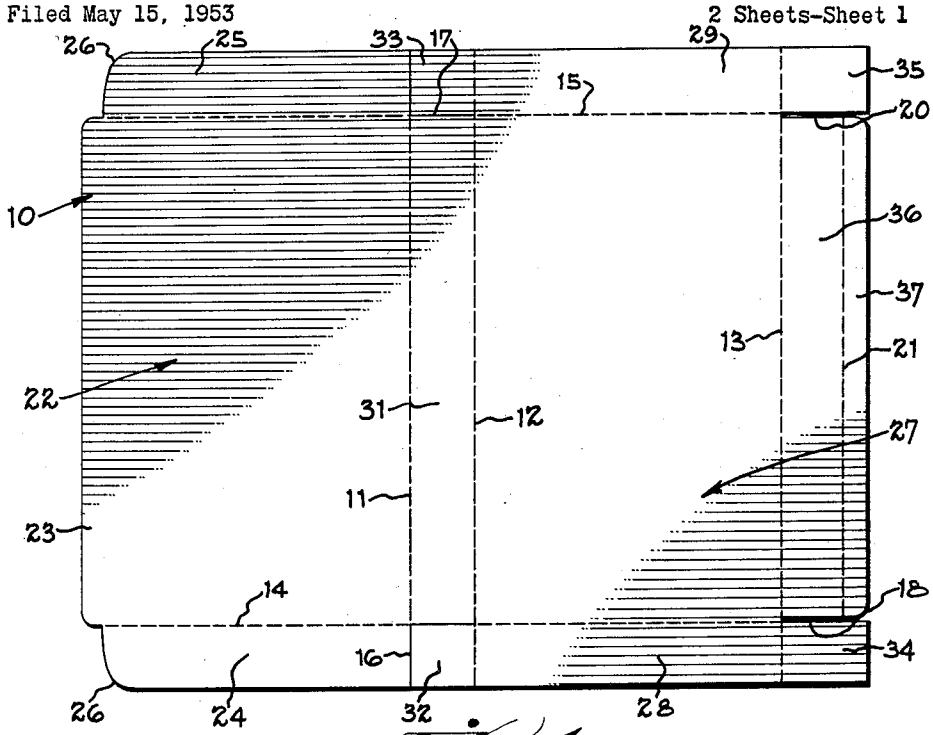


Fig. 1

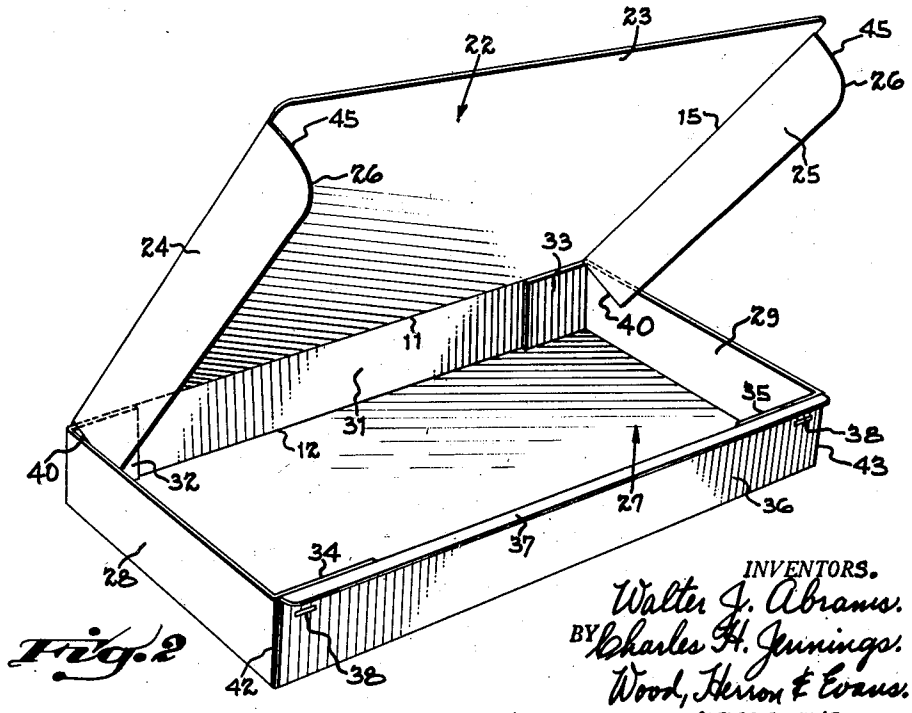


Fig. 2

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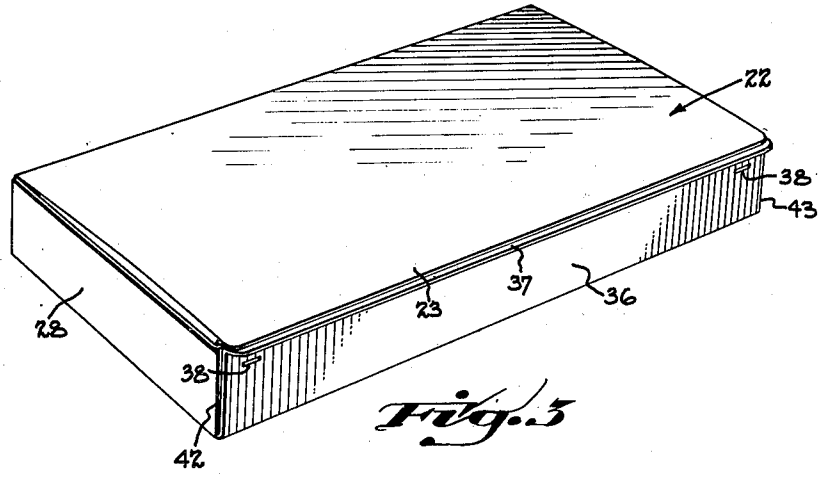


Fig. 3

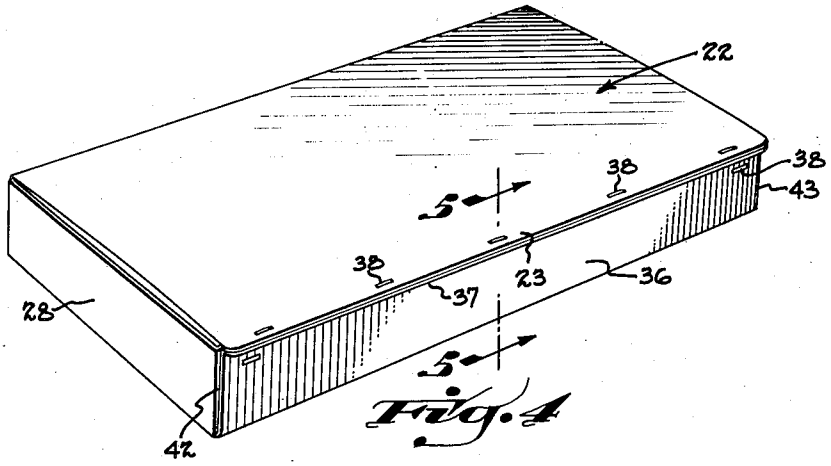


Fig. 4

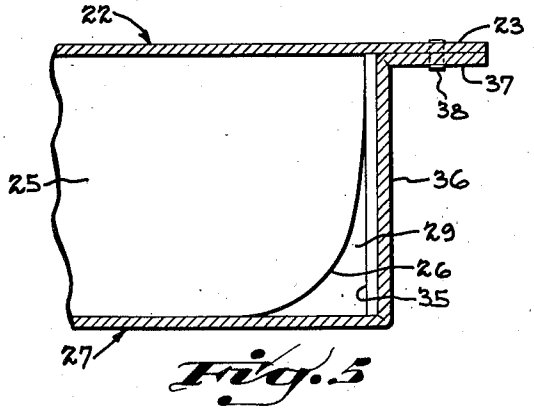


Fig. 5

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2,774,529

STAPLE SEALED CORRUGATED BOX

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Application May 15, 1953, Serial No. 355,234

3 Claims. (Cl. 229—33)

This invention relates to boxes and is particularly directed to a corrugated box which is sealed by stapling and is especially adapted for use as a mailing carton.

The principal object of this invention is to provide a rugged box suitable for the shipment of soft goods such as dresses, coats, suits, yard goods and the like. The box is particularly adapted to meet the needs of mail order houses in packaging such items for mailing to the customer. The features which particularly suit the present box for such use reside in the provision of a movable lid which may readily be sealed in its closed position by stapling, without any danger of injury to the contents of the box. In addition, the present box construction is highly advantageous in that the lid is frictionally held in the closed position without the need of staples or the like. Consequently, the box may be filled, the lid closed, and the box stored or transported prior to its final sealing without any danger of the lid's opening accidently. Furthermore, the box is constructed so that even though the lid is firmly held shut, against accidental opening, it can easily and quickly be opened by proper manipulation.

In order that the significance of these features may be fully appreciated, the operation of one type of mail order house in which such boxes can be used, will be described. The particular concern chosen as an example manufactures and sells women's dresses. Orders for these dresses are solicited from individuals and the dresses are mailed directly from the factory to the customer. This concern operates on a relatively high volume, involving upwards of a million shipments a year. As a result any savings that can be effectuated in packaging a dress for shipment are multiplied many thousand times in a short period and rapidly come to represent a substantial sum to the company.

In this particular factory each of the dresses is packed in an individual shipping container in the finishing room, after the final operation has been performed on the garment. The box, or shipping container, is then closed to protect the dress, which is temporarily stored pending the time when it is needed to fill an order. When an order is received for a particular dress, it is transported from the storage area to the shipping department where the box is reopened and the dress is inspected to insure that the size, color and so forth correspond to the specifications of the order. Then, the box is again closed and transferred to another section of the shipping department where a clerk inserts an invoice or advertising material and seals the box for shipment.

With boxes of the type previously in use, the sealing operation was performed by applying a length of gummed tape to the cover and box; or alternatively, the box was tied with string or was encased in wrapping paper which was in turn tied or taped. None of these sealing methods has proved very satisfactory since the gummed tape is dirty, has an unpleasant odor, and is somewhat difficult to apply properly. Furthermore, taping, wrapping, or tying a package consumes a rather substantial amount

of time and results in a relatively high packaging cost.

From the above description it can be seen that during the process of readying a dress for shipment, the box in which the dress is packed is opened three different times; once by the employee who originally inserts the dress, once by the inspector, and once by the final shipping clerk. Likewise the box is closed three times, twice temporarily, and once permanently. The box construction of the present invention is particularly adapted to facilitate each of these operations.

Generally the present invention contemplates a box having an integral lid including a lip protruding outwardly from the forward edge of the lid and a cooperating flap extension, which is formed on the front wall of the box and is folded down so that it extends forwardly of the upper edge of the wall. When the lid is closed the lip overlies the flap extension and these two elements may readily be stapled together to seal the box. A multihead wire stitching machine can be employed for this purpose and the entire plurality of staples inserted simultaneously. Since the lip and flap extension are completely outside the confines of the box there is no possibility of the staples injuring the goods. Furthermore, the customer can pry open the staples or cut off the lip and flap extension to open the box without danger of damaging the contents of the box.

Sealing a box by stapling in this manner is extremely advantageous as compared to the sealing methods previously used in conjunction with suit boxes and the like. Not only is the cost of the material substantially less, and the annoyances incident to applying tape avoided; but in addition, the time required to staple a box is only a small fraction of that required to tape, tie or wrap one. For example, we have found that the tape necessary to seal a box costs thirty times as much as the stapling wire needed to do the same job. Furthermore, it takes an operator approximately eight times as long to tape a box as it does to staple one. Thus substantial economies are effected by providing a box which can be sealed by stapling.

Another advantage of the present box is that once the lid has been closed, it will remain closed, even though it is not stapled and the box is subjected to a substantial amount of handling. Thus goods can be packed in the box and the box temporarily closed and shipped to other departments for storage, inspection and so forth without danger of damaging the goods. In the preferred embodiment, boxes are blanked out so as to include a bottom wall, and an integral lid joined by a rear wall. In addition, side walls and a front wall are formed contiguous with the bottom wall, and lid flaps of substantially the same length as the side walls are formed on the ends of the lid. The side walls, include front and rear flaps which are folded inwardly from the walls at the front and rear of the box. In setting up the box the front wall and side walls are joined as by stapling and the lid and rear wall are folded up, the lid flaps being tucked inwardly of the side walls and overriding the rear flaps so that these flaps are wedged between the lid flaps and rear wall. When the lid is brought into the closed position, the side walls are held in place by the frictional containment of their rear flaps, and the cover is held closed by the frictional engagement of the lid flaps with the front wall, or more specifically with the inner surface of the front flaps.

A still further advantage of the present invention is the ease with which the box can be opened when the lid is frictionally held in the closed position. In a box constructed in the manner set forth, the front wall inclines outwardly adjacent its upper edge. This inclination is due to the tendency of corrugated material when folded along a score line, to return to its normal, or unfolded

position. As a result of the inclination of the front wall, the flap extension extends beyond the forward edge of the lip formed on the lid. In the preferred construction, the front flap is formed by incising the upper edge of the front wall with a sharp knife-like instrument, the cut cut extending through all but one ply of the corrugated material. Hence the flap extension which is folded down along this incision does not have a great tendency to straighten out and offers only a minimum resistance to bending. Thus the protruding portion of the flap extension may be readily grasped and folded down away from the lip, so that the lip also can be easily grasped. The lip and extension are then pulled in opposite directions to raise the lid. Preferably, when the box is stapled the front wall is forced inwardly so that the lip and flap extension are brought into alignment.

In addition to these advantages of the present box construction it will be readily apparent that the box is attractive, as well as inexpensive to manufacture, and is of extremely light weight since there is a very minimum of overlapping material. Furthermore, the box is extremely durable and effectively protects the merchandise from the rough handling frequently encountered in the mails.

These and other advantages of the present invention will be more readily apparent from a consideration of the following detailed description of the drawings illustrating a preferred embodiment of the invention.

In the drawings:

Figure 1 is a top plan view of the blank from which the box is formed.

Figure 2 is a perspective view of the box in a partially closed condition showing the manner in which the lid flaps are folded within the end walls.

Figure 3 is a perspective view showing the box with the lid closed, but not stapled.

Figure 4 is a perspective view, similar to Figure 3, showing the manner in which the lid is stapled to the flap extension of the front wall.

Figure 5 is a cross sectional view taken along line 5—5 of Figure 4.

The blank **10** from which the box is formed is shown in Figure 1 of the drawings. This view illustrates the blank after it has been scored and cut. Preferably, the blank is constituted by a sheet of corrugated cardboard material. Such corrugated material is well known in the art and comprises three plys: two plane facing sheets separated by a corrugated portion of serpentine cross section. The blank is provided with three longitudinal score lines **11** and **12** near the center of the blank and **13**, adjacent to one end of the blank. The score lines are impressed into the cardboard blank by means of a blunt instrument in such a manner that the fibers of the blank are not cut or broken, but are merely compressed. This compression of the fizers facilitates the folding of the blank along the score lines, but does not weaken the material sufficiently to cause it to tear.

In addition to the longitudinal score lines **11**, **12** and **13**, two parallel score lines, **14** and **15**, are formed at right angles to the longitudinal score lines. In addition, the two side edges of the blank are provided with right angled cuts **16** and **17**, the cuts coinciding with portions of score lines **11**, **14** and **15**. Notches **18** and **20**, of the same thickness as the cardboard material, are formed at the ends of score lines **14** and **15**. The blank is also incised along a line **21** parallel to score line **13**; the incised line is formed by a sharp knife-like instrument, the cut extending through the upper plane ply and the corrugated center ply, but leaving the lowermost ply intact.

Score lines **11**, **14** and **15** define the top **22** which is generally rectangular in configuration, and is provided with an extending portion or lip **23**. Two lid flaps **24** and **25** are defined at the ends of the lid by score lines **14** and **15**. It will be noted that the outer ends of these side flaps are curved as at **26**; the function of this particular configuration will be explained below. The bottom

wall **27** of the box **10** is bounded by score lines **12**, **13**, **14** and **15**, and is also rectangular in shape and of substantially the same size as the top **22**. End walls **28** and **29** are formed at the ends of the bottom wall on the opposite sides of the transverse score lines **14** and **15**. The length of the end walls is substantially equal to the length of the two lid flaps **24** and **25**.

The lid and the bottom wall are separated in the blank by rear wall **31** which lies between score lines **11** and **12**. Rear flaps **32** and **33** are formed adjacent to the ends of the rear wall, but are separated from the rear wall and from the lid flaps by right-angled cuts **16** and **17**. Front flaps **34** and **35** are formed contiguous with the ends of the side walls **28** and **29**, and are separated from the front wall **36** by means of slots **18** and **20**. The front wall **36** adjoins bottom **27** at score line **13**, and is incised along line **21**, defining the flap extension **37**. The flap extension is preferably of substantially the same width as lip **23**.

In order to set up a box from a scored blank, end walls **28** and **29** are turned up from the bottom wall **27** and front flaps **34** and **35** are turned inwardly at right angles to the side walls. Then the front wall **36** is folded upwardly from the bottom along score line **13**, and is secured to the front flaps **34** and **35** by any suitable means such as by staples **38**. Other types of metallic fasteners may be employed if desired, or the front wall and flaps can be taped together. Flap extension **37** is folded downwardly along incision line **21**, so that the flap extends forwardly from the upper edge of wall **36**. Since incision **21** has been made through both the upper ply and the corrugated center ply, it extends from the interior of the box outwardly to the outer ply so that the extension flap can be turned down freely and will readily remain in a position at right angles to the front wall.

Rear flaps **32** and **33** are also folded inwardly at right angles to the end walls. The rear wall **31** is turned up along score line **11** into abutment with the rear flaps. Simultaneously, lid **22** is raised so that lid flaps **24** and **25** override the rear flaps **32** and **33**, the latter flaps becoming wedged between the rear wall and the rear edge **40** of the side flaps.

The box may be filled with the lid in this position, and the lid may then be closed as shown in Figure 3. When the lid is closed, flaps **24** and **25** are disposed interiorly of walls **28** and **29**. Since the natural tendency of these flaps is to spring outwardly, they remain in contact with the side walls and do not interfere with the hoods in the box. As the lid approaches its closed position, curved portions **26** of the lid flaps move past front flaps **34** and **35**, and then as the lid is completely closed, straight portions **45** of the lid flaps abut the rear faces of the front flaps. Since the lid flaps and end walls are of substantially the same length, these flaps are wedged against the front flaps with sufficient force to frictionally hold the lid in its closed position. When the lid is in the closed position, lip **23** overlies flap extension **37**, and the two reside in abutment over their entire length.

As particularly shown in Figure 3, before the box is stapled there is a marked tendency of the front wall **36** to incline outwardly from the bottom wall to its upper portion. This action is caused by the resiliency of the cardboard material, which when bent along a score line tends to spring back to its original position. Not only is front wall **36** urged outwardly by its own resiliency, but also by front flaps **34** and **35** which tend to swing outwardly along front corners **42** and **43**. The result of the outward inclination of the front wall is that the flap extension **37** extends outwardly beyond lip **23**. This greatly facilitates the opening of the box, since the flap extension can readily be grasped and bent downwardly away from the lip, while the lip is grasped with the other hand. The two are then pulled apart to raise the lid.

When the box is stapled, the front wall **36** is prefer-

ably forced inwardly so that the forward edges of extension flap 37 and lip 23 reside in alignment as shown in Figures 4 and 5. Then a plurality of staples are driven through the extension flap and lip and are clenched to secure the two members together and seal the lid in the closed position.

When using a box of this type, it is preferable, although not absolutely necessary, to have the box completely set up by the time it reaches the employee who is to insert the goods. That is, the front flaps are stapled to the front wall, the rear flaps are turned inwardly, and the lid is closed. The employee who is to fill the box grasps the protruding portion of the flap extension 37 in one hand and bends the extension flap downwardly. With his other hand, he grasps the lip 23 and raises the lid to a substantially vertical position such as shown in Figure 2. This is a stable position for the lid, since the rear edges 40 of the lid flaps 24 rest upon the top edges of the rear flaps 32. After the goods have been inserted, the lid is again lowered to its closed position in which the lip abuts the flap extension. Once the lid has been closed, the box can be stored, or transferred to other areas for subsequent operations, and the lid will remain closed because of the frictional contact between the lid flaps and front wall.

If the container is to be reopened, this is done by grasping the lip and the flap extension as before. After whatever operation is to be performed is completed, the lid is again closed and will remain so unless opened for a still further operation. When the box is to be finally sealed, it is closed in the usual manner, and the lip and flap extension are inserted in a stapling machine. Preferably, means are provided for abutting the front wall of the box so that the wall is urged inwardly and the front edges of the flap extension and lip are aligned before the staples are driven and clenched. The stapled box is extremely neat and attractive. Furthermore, it can be opened easily by cutting through the extension or lip adjacent to the outer edge of the front wall. If a knife or other sharp instrument is employed to open the box, it operates completely without the confines of the box, and there is no possibility that the merchandise will be cut while opening the carton. However, in the preferred method of opening the box a blunt instrument, such as a spoon handle, is run along the incision separating the lip and front wall. The single ply of paper at this area is readily torn so that the box is quickly and easily opened.

It will be apparent that the present invention, although limited to relatively flat boxes adapted for the shipment of soft goods, is susceptible of several minor modifications without departing from its scope. For example, it is contemplated that the front flaps may be omitted and the side and front walls be joined by tape. Of course, if the front walls are omitted, the lid flaps are slightly elongated so that they abut against the inner surface of the front wall. Similarly, other flap arrangements are known in the art for frictionally interlocking the side and rear walls.

Having described our invention, we claim:

1. A box made of corrugated paper comprising a bottom wall, a lid, a rear wall interconnecting said bottom wall and said lid, a pair of end walls joined to said bottom wall at the ends thereof, a front wall joined to said bottom wall opposite the rear wall, said front wall and said bottom wall being joined by a score line formed on said corrugated paper, said front wall being incised along a line extending longitudinally thereof, said incision extending from the interior of the box outwardly partially through said corrugated sheet, the portion of said front wall on the side of said incision remote from said bottom wall being overfolded along said incision at right angles to the front wall and constituting a flap extension, said lid including a lip extending forwardly of the front portion of the lid, said lip being disposed to overlie said flap extension when the lid is in the closed position, means securing the end walls to the front wall, said lid being provided with lid flaps adjacent to the ends thereof, said lid flaps being disposed interiorly of said end walls when the lid is closed, said front wall inclining outwardly at the upper edge thereof due to the resiliency of said corrugated paper, whereby said flap extension protrudes beyond said lip when the lid is in the closed position, the incision in said front wall providing a line of weakening along which said box can readily be opened by cutting said flap from said front wall.

2. A box made of corrugated paper comprising a bottom wall, a lid, a rear wall interconnecting said bottom wall and said lid, a pair of end walls joined to said bottom wall at the ends thereof, a front wall joined to said bottom wall opposite the rear wall, said front wall being incised along a line extending longitudinally thereof, said incision extending from the interior of the box outwardly partially through said corrugated sheet, the portion of said front wall on the side of said incision remote from said bottom wall being overfolded along said incision at right angles to the front wall and constituting a flap extension, said lid including a lip extending forwardly of the front portion of the lid, said lip being disposed to overlie said flap extension when the lid is in the closed position, each of said end walls including an inwardly turned front flap abutting said front wall, means securing the front flaps to the front wall, said front wall and said flaps being defined by score lines formed in said corrugated paper, said lid being provided with lid flaps adjacent to the ends thereof, said lid flaps being disposed interiorly of said end walls when the lid is closed, said front wall inclining outwardly at its upper edge due to the resiliency of said corrugated paper at the score lines defining said front flaps and said front wall, whereby said flap extension protrudes beyond said lip when the lid is in the closed position, the incision in said front wall providing a line of weakening along which said box can readily be opened by cutting said flap from said front wall.

3. A box made of corrugated paper comprising a bottom wall, a lid, a rear wall interconnecting said bottom wall and said lid, a pair of end walls joined to said bottom wall at the ends thereof, a front wall joined to said bottom wall opposite the rear wall, said front wall and said bottom wall being joined by a score line formed on said corrugated paper, said front wall being incised along a line extending longitudinally thereof, said incision extending from the interior of said box outwardly partially through said corrugated sheet, the portion of said front wall on the side of said incision remote from said bottom wall being overfolded along said incision at right angles to the front wall and constituting a flap extension, said lid including a lip extending forwardly of the front portion of the lid, said lip being of substantially the same size as the flap extension, and being disposed to overlie said flap extension when the lid is in the closed position, means securing the end walls to the front wall, said lid being provided with lid flaps adjacent to the ends thereof, said lid flaps being disposed interiorly of said end walls when the lid is closed, said front wall tending to incline outwardly at the upper edge thereof due to the resiliency of said corrugated paper, whereby said flap extension tends to protrude beyond said lip when the lid is in the closed position, a plurality of staples inserted through said lip and said extension flap, said staples being effective to secure the flap extension and lip together with their edge in alignment against the tendency of the flap extension to protrude beyond said lip, the incision in said front wall providing a line of weakening along which said box can readily be opened by cutting said flap from said front wall.

(References on following page)

References Cited in the file of this patent

UNITED STATES PATENTS

918,138	Flora	Apr. 13, 1909
1,530,644	Blandford	Mar. 24, 1925
1,550,646	Larson	Aug. 18, 1925
1,822,936	Reichel	Sept. 15, 1931
2,505,442	Thomas	Apr. 25, 1950

FOREIGN PATENTS

7,949	Great Britain	of 1907
585,498	Germany	Oct. 4, 1933
784,593	France	Apr. 29, 1935
471,136	Great Britain	Aug. 30, 1937
374,225	Great Britain	June 9, 1952