

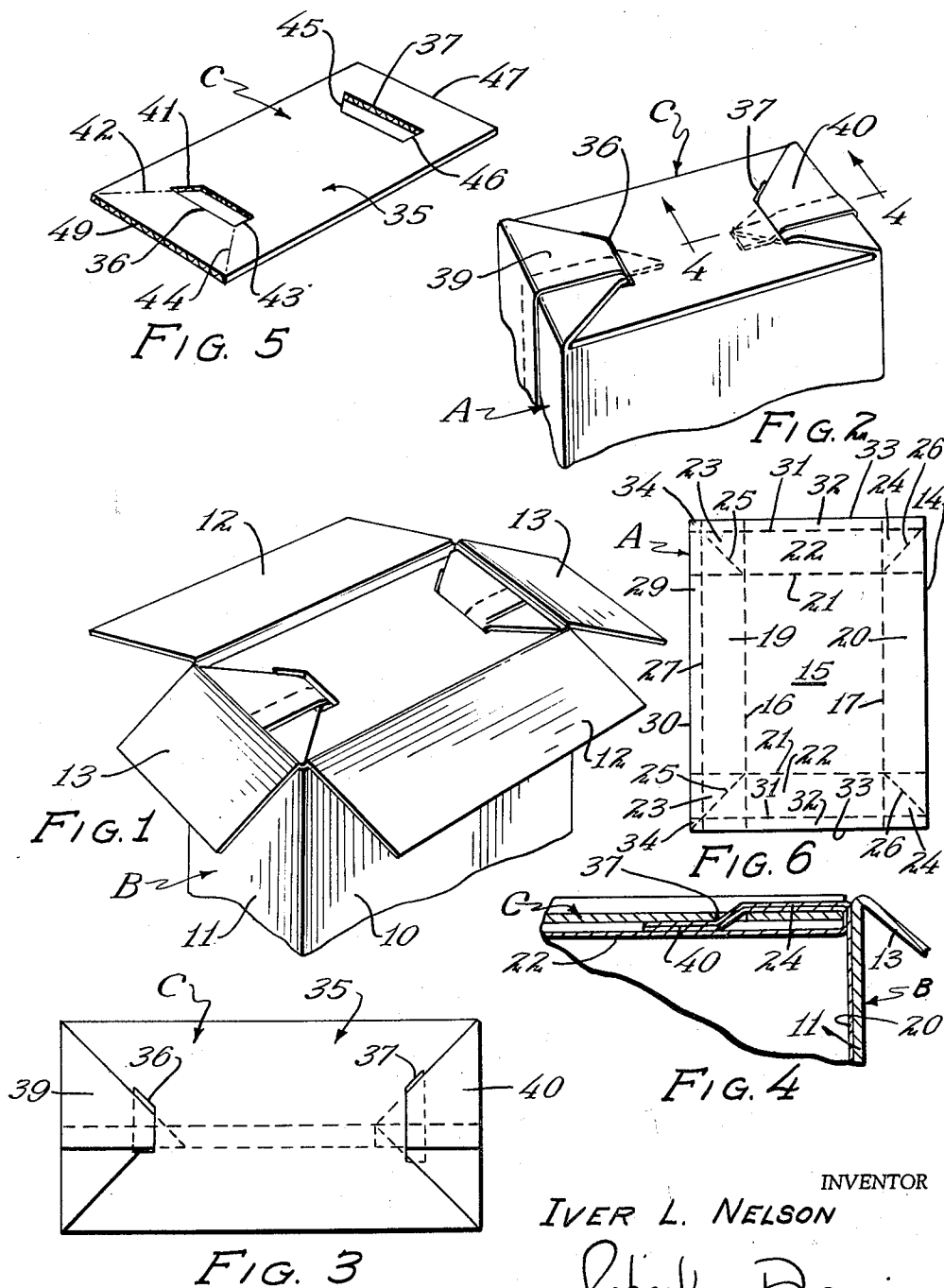
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I. L. NELSON
LINED CONTAINERS

3,157,341

Filed June 7, 1962

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

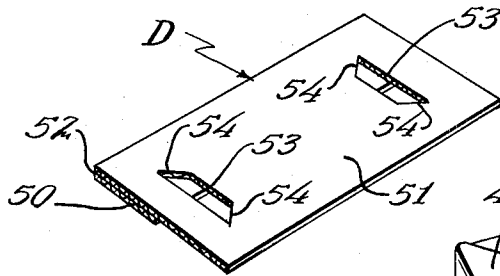


FIG. 9

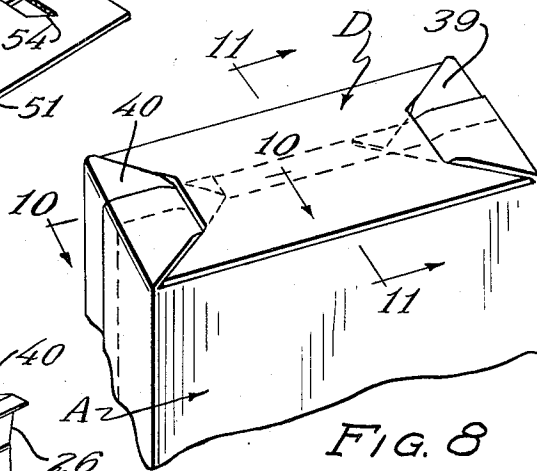


FIG. 8

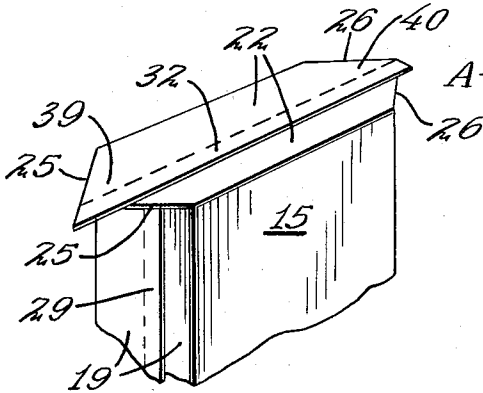


FIG. 7

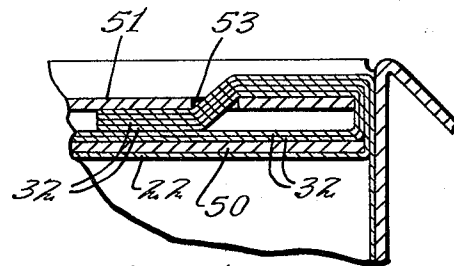


FIG. 10

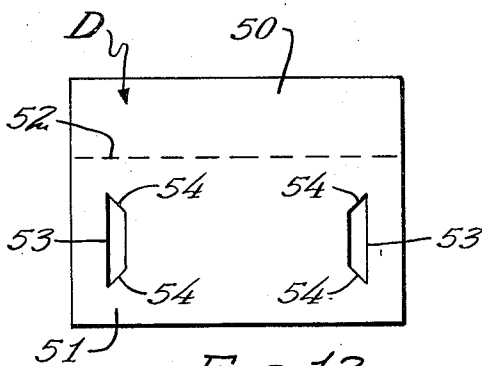


FIG. 12

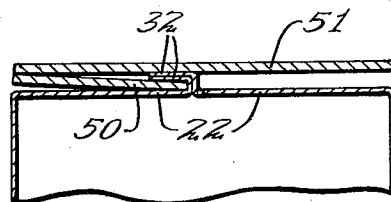


FIG. 11

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3,157,341

LINED CONTAINERS

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8 Claims. (Cl. 229-14)

This invention relates to an improvement in lined containers and deals particularly with an outer rectangular container having a sealed inner container therein, and in which a reinforcing pad is provided at each end of the inner container for reinforcing the same.

With the perfection of films and coatings which are heat sealable and which are impervious to moisture, more and more liquids and semi-liquids are being shipped in containers made primarily of paperboard. In many instances, these containers include an inner liner or bag member which is usually formed of relatively thin paperboard having a film or coating of heat sealable material applied thereto. This inner liner is protected by an outer container, which is usually composed of corrugated paperboard or fibreboard so as to prevent injury to the liner during handling and shipment. In some cases, these inner liners or bags are formed of a single sheet of paperboard which is centrally folded and which is heat sealed along two marginal edges to form a bag having an open top. The paperboard is usually creased to fold into rectangular shape, the corners of the sheet being diagonally folded to form a pair of triangular ears which may be folded against the sides or ends of the container. After the bag has been filled, the open end is sealed in a manner similar to the first end, again forming a pair of generally triangular flaps or ears which must be folded against the side walls or ends of the container. It has been found that by providing a reinforcing pad overlapping the top and bottom ends of the bag and about which the triangular flaps or ears are folded, much less damage to the bag is usually sustained during handling and shipment.

One of the difficulties with this construction lies in the fact that the triangular ears should be fixedly secured to the reinforcing pads to be most effective. This is difficult as it is usually necessary to close and seal the containers in the customer's plant, and as it is a somewhat unsatisfactory operation to apply glue to the triangular ears, to fold the ears over the reinforcing pad, and to hold the ears against the pad until the glue has set. Accordingly, it is the object of the present invention to provide a reinforcing pad equipped with a pair of slots or apertures extending therethrough through which the ends of the triangular ears may extend. As a result, the ears are held in properly folded condition without the use of adhesive, thus producing a more satisfactory completed package.

It is a feature of the present invention to provide reinforcing bands with a pair of spaced slots which are so located as to permit the ends of the triangular ears to be inserted and which hold the ears in place. At the same time, the ears may be unfolded for opening the inner liner without causing injury to either the reinforcing pad or the surface of the liner.

A further feature of a modified form of construction lies in the provision of a pad of the type described having a folded flange which is designed to extend between the seam formed by sealing the bag edges together and the body of the bag. This flange is foldably connected to the body of the slotted reinforcing pad, and forms a further support for the relatively fragile bag.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification; FIGURE 1 is a perspective view of a filled and closed liner just before the outer container is sealed.

FIGURE 2 is a perspective view of an end of the liner showing the reinforcing pad in place.

FIGURE 3 is a top plan view of the liner illustrated in FIGURE 2, the outer container being omitted in order to better display the contents.

FIGURE 4 is a sectional view through a portion of the closure, the position of the section being indicated by the line 4-4 of FIGURE 2.

FIGURE 5 is a perspective view of the pad.

FIGURE 6 is a diagrammatic view of the liner blank in flat form.

FIGURE 7 is a perspective view of the upper end of the container liner before the ears are folded inwardly, and the reinforcing pad inserted.

FIGURE 8 is a perspective view of the upper end of the liner employing a modified form of pad.

FIGURE 9 is a perspective view of the pad in folded position.

FIGURE 10 is a sectional view through a portion of the liner, pad, and outer container, the position of the section being indicated by the line 10-10 of FIGURE 8.

FIGURE 11 is a transverse vertical section through the upper portion of the liner and the reinforcing pad, the position of the section being indicated by the line 11-11 of FIGURE 8.

FIGURE 12 is a diagrammatic view of the pad illustrated in FIGURES 8-11.

The liner A is, in effect, a generally rectangular bag-like structure preferably formed of heat sealable material or of paperboard having a heat sealable surface. When expanded into its rectangular shape, it is inserted within an outer container B which may be of any suitable type or form, but which is usually a rectangular corrugated container having rectangularly arranged side and end walls 10 and 11 which are provided at their upper and lower ends with closing flaps 12 and 13 respectively. The invention involved in the present application resides in the provision of a reinforcing pad C which overlies the ends of the bag-like liner to reinforce the same. As the ends of the liner are similar and are similarly reinforced, only one end is shown in detail in the drawings.

The liner A as illustrated in the drawings comprises a generally rectangular sheet of foldable paperboard having a heat sealable surface thereupon. The rectangular sheet is folded along the edge 14 to provide two contiguous panels which are sealed along two edges, as will be later described.

The two side panels are identical and are in superimposed face contact in FIGURE 6. Each panel includes a side wall 15 which is folded along parallel fold lines 16 and 17 to form side wall sections 19 and 20, respectively. The walls 15 which may be called the front and rear walls for the purpose of identification are connected along upper and lower edges by parallel fold lines 21 to top and bottom end wall sections 22. The top and bottom end wall sections 22 are connected to the side wall sections 19 and 20 by rectangular corner sections 23 and 24, respectively, which are divided into two similar triangular portions by diagonal fold lines 25 and 26, respectively. The diagonal fold lines 25 and 26 radiate at a forty-five degree angle from the corners of the front and rear panels 15.

The side wall sections 19 are foldably connected along a fold line 27 to a sealing margin 29 which extends from the fold line 27 to the edges 30 of the blank. In a similar manner, the top and bottom end wall sections 22 are foldably connected along parallel fold lines 31 to sealing

margins 32 which extend between the fold lines 31 and the adjacent edges 33 of the blank.

Due to the fact that the edge 14 of the two superposed panels is a fold line, the diagonal fold lines 26 extend from the corners of the front and rear panels 15 to the juncture between the fold lines 31 and the folded edge 14. On the other hand, the diagonal fold lines 25 continue past the juncture between the fold line 27 with the fold line 31, thus also extending through the marginal portions which form the seams. As a result, when all of the marginal edges are sealed together, the triangular ears formed by the rectangular areas 23 and the adjacent portion of the blank margins are longer than the triangular ears formed by the folded rectangular portions 24, the difference in length between the ears comprising the width of the sealing margins 29 and 32.

In the formation of the liner, the sealing margins along two adjoining edges of the folded blank are heat sealed in face contact. For example, the blank may be sealed between the fold line 31 and the lower edge 33 of the blank, and between the fold line 27 and the edge 30 of the blank throughout the entire height of the blank, including the small rectangular areas 34 which are at the two opposed corners of the blank. This provides a bag structure which may be folded so that the side wall portions 19 are in a common plane and connected by the marginal seams 29 and the side wall sections 29 are in a common plane, these parts being integral. Similarly, the end wall panels 22 at the lower end of the container are also folded into a common plane, these parts connected by the seam 32. After this folding is completed, two triangular flaps are provided as indicated generally in FIGURE 7 of the drawings, one of the triangular ears being slightly longer than the other due to the continuation of the diagonal fold line 27 through the portions forming the marginal seams. These ears are then folded to underlie the ends of the container and are reinforced by a reinforcing pad C. The liner which has been described is not novel in the present invention, but has been described somewhat in detail so that the purpose of the reinforcing pad C may be better understood.

The reinforcing pad C comprises a flat body of relatively stiff paperboard such as corrugated board, the flat rectangular sheet being indicated in general by the numeral 35. The sheet 35 is substantially equal in shape and area to the ends of the container. Two parallel slots or apertures 36 and 37 are provided in the sheet 35 and are designed to accommodate the ends of the triangular ears which are identified generally by the numerals 39 and 40. The ears 39 are formed by the diagonal folding of the rectangular areas 23, while the ears 40 are formed by the diagonal folding of the rectangular areas 24. The ears 39 are longer than the ears 40, the difference in length comprising the width of the sealing areas 29 or 32.

In the arrangement illustrated, each slot 36 is provided with a diagonally cut end 41 which is substantially on a line extending diagonally at forty-five degrees from a corner of the sheet and indicated by the broken line 42. The opposite end edge 43 is preferably at right angles to the longitudinal edge of the slot 36 and terminates substantially on a broken line 44 extending diagonally from the opposite corner of the sheet 35 and and at the same end of the elongated sheet. In the same manner, the slot 37 is provided with a diagonal end 45 and a square end 46. One of the purposes of the diagonal and square ends is to assist the packer in properly locating the reinforcing pad with respect to the end of the bag. It will be noted that the slot 37 is somewhat longer than the slot 36, and is closer to the end edge 47 of the pad body 35 than is the slot 36 to the opposite parallel end 49. This arrangement is to compensate for the different lengths of the two ears 39 and 40, both of the slots being substantially equidistant from the ends of the ears when the pad is in place.

In completing the closure, the shorter ear 40 is inserted

through the wider slot 37 and the pad C is folded against the end of the liner A. The ear 39 is then folded from the outwardly directed position illustrated in FIGURE 7 inwardly over the pad C, and the pointed end of this flap 39 is inserted through the narrower slot 36 and into the position illustrated in the drawings.

A second object of the right angular end 43 of the narrower slot 36 is to engage against the projecting seam and to hold the pad in proper relation to the bag end.

In FIGURES 8-12, a modified form of reinforcing pad is disclosed which may be used in place of the pad C previously described. The reinforcing pad D in its folded condition illustrated in FIGURE 9 of the drawing is of approximately the same dimensions as the end of the liner A, the liner being identical to that previously described. The pad D differs from the pad A in general in including a flange 50 hingedly connected along a longitudinal edge of the pad body 51 along a cut score line 52, the flange 50 being designed to underlie the body of the pad 51, and to extend to the center line of the pad portion 51. As indicated in FIGURE 11 of the drawings, the marginal edge of the flange 50 extends between the seam formed by the edge margins 32 and the end panel section 22 which it overlies, therefore further reinforcing the liner ends and definitely locating the pad D with respect to the liner A.

In the pad D, spaced parallel slots or apertures 53 are provided near opposite longitudinal ends of the pad body 51. In this construction, the slots 53 are trapezoidal in shape having end edges 54 which are substantially located on diagonal lines extending inwardly at forty-five degrees from the corners of the pad 51. In this construction, the slots 53 are sufficiently close to the ends of the pad to permit the ears 39 and 40 to engage the ends of the slot.

The operation of the pad is believed obvious. After the bag has been expanded and the ears 39 and 40 folded outwardly as indicated in FIGURE 7 at the completion of the sealing of the end, the edge of the flange 50 is tucked between the sealed margins 32 and the end wall sections 22, and the body of the pad is folded to overlie the end of the liner. The ears 39 and 40 are then folded upwardly over the ends of the pad body 51 and tucked through the slots 53 into the position illustrated in FIGURE 8 of the drawings.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in a lined container, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A reinforcing pad for use in combination with a rectangular box liner having generally parallel ends, and triangular ears hingedly connected to opposite parallel edges of each of said ends, the pad comprising, a body of relatively rigid paperboard substantially equal in shape and size to said liner ends, said body having a pair of generally parallel slots extending therethrough, and said slots being so positioned and so shaped as to accommodate the ends of the triangular ears extending therethrough.

2. A reinforcing pad for use in conjunction with a box liner of generally rectangular form formed of a rectangular sheet centrally folded and sealed along the remaining three edges, the liner having parallel ends and triangular ears foldably connected to opposite edges of each of two parallel ends, the ears being foldable to overlie the said ends, the pad including,

a rectangular sheet of relatively rigid paperboard similar in size and shape to the said parallel liner ends, each said pad having a pair of elongated generally parallel apertures therethrough spaced from the edges thereof adapted to overlie the said edges of

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said parallel ends a distance less than the length of said triangular ears, said apertures being of proper size to accommodate the free ends of said triangular ears.

3. The structure of claim 2 and in which one of said triangular ears is longer than the other and in which the aperture through which the shorter said ear is adapted to extend is spaced from the nearest end edge of said pad a distance less than the spacing of the other said aperture from its adjacent end edge.

4. The structure of claim 2 and including a flange hingedly connected to an edge of said body of relatively rigid paperboard and being foldable to underlie substantially one half the area of the pad body.

5. A reinforcing pad in combination with a sealed liner, the liner comprising,

a substantially rectangular sheet of heat sealable material folded along a line of fold to provide two superposed contiguous panels,

said panels being marginally sealed along two adjoining edges to provide, with the folded edge, a sealed liner end,

said panels being creased to provide opposed front and rear panels, first side wall sections between said front and rear panels and said line of fold, second side wall panels between said front and rear sections and the marginal seal opposite to said line of fold, and end wall sections between said front and rear panels and the marginal seal along the edge adjoining said fold line and at right angles thereto,

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the portions of said contiguous panels between said side wall sections and end wall sections being creased to provide generally triangular ears hingedly connecting the ends of said end wall sections, to the adjoining ends of said side wall sections,

the reinforcing pad including a rectangular body of relatively stiff paperboard approximately equal in area and shape to the liner end formed by said end wall sections, and

said pad having a pair of generally parallel apertures therethrough through which the ends of said generally triangular ears may extend, said ears being folded over the ends of said pad and through said apertures.

6. The structure of claim 5 and in which one of said ears is longer than the other, and

in which the apertures are substantially equidistant from the end extremities of the ears.

7. The structure of claim 5 and in which said slots are of trapezoidal shape with the ends of the slots extending diagonally from the pad corners.

8. The structure of claim 5 and in which the pad includes a flange hinged to an edge thereof and folded between the sealed edge connecting said end wall sections and one of said end wall sections.

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