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LINER FOR SHIPPING CONTAINERS

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5 Claims. (Cl. 229—14)

This invention relates to an improved liner for shipping containers of the class frequently used in the packing and shipping of plastic and moist foodstuffs, such as butter, lard and the like. An object of this invention is the provision of a paper liner which provides maximum protection both to the foodstuff and to the outer box or container. Another object is to provide a one-piece liner which may be shipped collapsed and flattened so that large numbers may be sent in the form of bales to the packeter but which requires only the one operation of expanding the liner before being placed in the shipping box. General objects are to provide a strong, inexpensive and moisture-proof paper liner.

In the accompanying drawings forming a part of this specification:

Fig. 1 is a perspective of the assembled liner;
Fig. 2 is a perspective of the liner when partially collapsed;
Fig. 3 is a perspective of one form of container with which the liner of this invention may be used;
Fig. 4 is a plan of the blank from which the liner is made; and
Fig. 5 is a front elevation of the liner illustrating an improved means by which the blank is held together.

Referring first to Fig. 4, there is shown a substantially rectangular blank 10 which is cut from a sheet of very heavy paper having at least one surface treated to make it highly resistant to moisture. The dotted lines in the figure indicate score lines along which the blank is folded to form the liner of Figs. 1 and 2. The two parallel score lines 11 and the two parallel score lines 12 together define a rectangular bottom 13, similar side walls 14, and similar end walls 15. Flaps 16 attached to the sides 14 and flaps 17 attached to the ends 15 comprise the cover. The four corner segments 18, 19, 20 and 21 of the blank are each bisected by a diagonal score line 22 defining two generally triangular portions. Each of the triangular portions is provided with an L-shaped slit 24, a notch 28 and a tongue 26, these parts being disposed symmetrically with respect to the score line 22.

In folding the blank to the form shown in Fig. 1, the sides 14 are folded upwardly from the plane of the paper in Fig. 4 along the score lines 12, the ends 15 are folded upwardly along the score lines 11, while the corner segments are pushed outwardly so that the triangular portions of each segment fold together along the diagonal lines 23, forming single triangular flaps of double thickness. The flaps formed by the corner segments 18 and 19 are then folded back against the front side 14 and the doubled tongue 26 of the segment 18 is interlocked with the L-slit 24 of the segment 19 while in the same way the doubled tongue of the segment 19 is engaged with the slit in the segment 18, as shown in Figs. 1 and 5. The corner segment 20 is then interlocked with the corner segment 21 in the same manner. Due to the L-shape of the slits 24, the slits are easily inserted into the doubled tongues, and after a tongue has been inserted through a slit, it is positively locked or hooked in position by the notch 25.

In order to permit collapsing for shipment, the blank is further scored along a line 27 which bisects the bottom 13, ends 15 and flaps 17. The ends 15 are also scored along the diagonal lines 28 and 29 defining triangular segments 30 and 31. The liner may thus be collapsed by pushing the ends inwardly, and the bottom upwardly, so that the triangular segments 30 and 31 fold together and become parallel to the halves of the bottom wall, as shown in Fig. 2. Although the liner is shown as only partially collapsed in Fig. 2, it may be flattened to a thickness of approximately one quarter of an inch so that a large number of the liners may be packed in the form of bales, occupying a minimum of space, though completely assembled, and shipped to the packer. The packer is thus freed from the trouble of folding or assembling the liners and has only to spread them and place them in the containers.

In Fig. 3, I have shown a conventional container which is usually in the form of a corrugated fibre board box, and since these boxes are rather expensive, and are seriously weakened by moisture, it is highly desirable to protect them from moisture. When used for the packing and shipping of tub butter, I have found that the liner described affords complete protection to the container from any moisture within. When the retailer desires to remove the butter from the container, the liner may be withdrawn by sliding the fingers between the sides 14 of the box and the overlapping doubled flaps 18, 19, 21 and 22, and grasping the flaps as handles, at which time the doubly interlocked flaps protect the hand, obviating danger of tearing as might be caused by attempting to lift the liner by one of the cover flaps.

The invention provides an inexpensive liner of strong, simple and moisture-proof construction, which may be shipped in a minimum of space,
and which offers considerable saving in time and other advantages to the user.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described.

What we claim is:

1. A liner comprising a one-piece blank of flexible material; said blank being scored along two pairs of mutually perpendicular lines defining a rectangular bottom and four side walls and folded to form a right prism; said blank having four substantially rectangular corner segments, each bisected by a diagonal score line extending to a corner of the bottom, said corner segments being folded along said diagonal score lines to form substantially triangular flaps of double thickness on the outside of the liner; said flaps each having a notched ear and a slit spaced from the ear; all of said ears being at the outer, free ends of said triangular flaps; pairs of said flaps on either side of the liner being folded toward each other and against said side walls and the ears of each pair of said flaps being interlocked in the slits of the other pair.

2. A liner for packing boxes comprising a one-piece blank of paper scored for folding and bent to provide a bottom, four side walls and cover flaps; said blank having four substantially rectangular corner segments contiguous with the side walls, each of said corner segments being scored diagonally from a corner of the bottom section, bent double, and folded as triangular flaps against opposite sides of the liner; each of said doubled flaps having an L-shaped slit in both layers and a notched ear of double thickness projecting from a corner of the bottom section to form two triangular portions, each having an edge in common with a wall section; said triangular portions each having a notched ear and a locking slit, and the ears and slits being geometrically located with respect to the diagonal score lines, said blank being further scored along a line bisecting the end walls and bottom; and each of said end walls being scored along a pair of diagonal lines extending to the corners of the bottom and meeting at a point on said bisecting line.

4. A liner for packing boxes comprising a one-piece blank of paper scored for folding and bent to provide a bottom, four side walls and cover flaps; said blank having four substantially rectangular corner segments contiguous with the side walls; each of said corner segments being scored diagonally from a corner of the bottom section, then bent double and folded as a substantially triangular flap against one of the sides of the liner; each of said doubled triangular flaps having an L-shaped slit in both layers and a notched ear of double thickness projecting from the outer corner, the ear of each flap being inserted through and interlocked with a slit in the adjacent flap on the same side of the box.

5. A liner for shipping containers comprising a generally rectangular blank of flexible, fibrous material and folded to provide a right prism having a bottom, four side walls and four triangular flaps of double thickness; said flaps having interlocking engaging means to lock the ends of the flaps together in pairs; each pair of flaps, when secured together, being spaced from the lower portion of the side wall against which they normally lie, said space facilitating the insertion of a hand from below, so that said liner may be lifted out readily by means of the hand holds provided by the interlocked flaps; the pairs of flaps being entirely free of each other except for said interlocking means; the top of the liner being free of any handle or carrying member, so as to facilitate access to the contents of the liner.

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