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WIREBOUND BOX WITH INTEGRAL PARTITION
Philip S. Langer, Denville, N.J., assignor to Stapling Machines Co., Rockaway, N.J., a corporation of Delaware
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This invention relates to wirebound boxes (which expression is used herein to include crates and other containers) and particularly to blanks for forming wirebound boxes having an integrally attached, foldable sheet which forms a transverse partition in the box when it is set up.

In general terms, the box blank of the present invention consists of a conventional wirebound box blank having front, bottom, rear and top sections formed of face material with reinforcing cleats secured thereto adjacent the lateral edges of the box blank, with the several sections foldably secured together by binding wires attached thereto by staples driven astride the binding wires through the face material and into the cleats. Secured to the inner face of the box blank and extending across the front, bottom and rear sections is a separate unitary piece of cushioning sheet material, such as corrugated fibreboard, which is cut and folded to provide transversely extending flaps which are sandwiched between the face material and cleats on the front and rear sections of the box blank and a central portion which normally lies substantially flat across the bottom section of the box blank but which, when the box blank is folded to set up the box, is folded upwardly to form a partition which extends transversely across the center of the box generally perpendicularly to the front, bottom and rear sections. This same sheet of material also serves to line the inner faces of the front and rear sections of the box. The bottom and top sections may also be fully lined with similar cushioning sheet material, such as corrugated fibreboard, so that, when the box is set up, it is not only provided with a partition, but is fully lined with cushioning material.

The lining material on some or all of the box sides may be slotted for ventilation.

In the drawings:

FIGURE 1 is an isometric view of the separate partition-forming sheet member of corrugated fibreboard, showing in full lines its original shape and in broken lines its shape after folding but prior to being fabricated into the box blank.

FIGURE 2 is an isometric view of a complete wirebound box blank in which the partition-forming sheet member is incorporated.

FIGURE 3 is a fragmentary isometric view showing a portion of the adjacent side of the box blank of FIGURE 2 with the box blank partially folded in the process of forming a box.

FIGURE 4 is an isometric view of a box formed from the box blank of FIGURES 2 and 3.

As may be seen in FIGURE 1, the partition-forming member, generally designated 2, is formed of a unitary sheet of corrugated fibreboard material, of generally rectangular shape, the length of the member 2 being equal to the overall length of the front, bottom and rear sections of the box blank into which the member is to be incorporated, and the width of the sheet being equal to twice the length of the individual front and rear sections (such length being measured in a direction lengthwise of the box blank and being equal to the inside depth of the completed box).

The sheet member 2 is cut at each end to provide a narrow, elongated slot 4, the two slots 4 extending along the central longitudinal axis of the member 2 from its opposite transverse edges, each for a distance equal to the length of the individual front and rear sections of the box blank (this length being measured as indicated above). This leaves an uncut central portion 38—38, the length of which is approximately equal to that of the bottom section of the box blank.

The central portion 38—38 is scored, as indicated at 6, along a central longitudinal line extending between the inner ends of the two slots 4, and is also scored, as indicated at 10, along spaced, parallel, transversely extending lines which intersect the inner ends of the slots 4 and which extend perpendicularly to the lateral edges of the member 2. It is also scored, as indicated at 12, along oblique lines which extend from the inner ends of the slots 4 to the lateral edges of the member 2, intersecting the lateral edge at points spaced from the point of the intersection of the adjacent score line 10 with such edge a distance equal to the length of the individual front and rear sections of the box blank (measured as indicated above). The sheet member 2 may also be provided with slots 8 for purposes of ventilation.

After being cut to the size and shape indicated, the four flaps 14 formed by the two slots 4 are folded downwardly and outwardly along the oblique score lines 12 to the laterally projecting positions indicated by broken lines A in FIGURE 1.

FIGURE 2 shows a wirebound box blank incorporating the sheet member 2 of FIGURE 1. As may be seen in that figure, the box blank is of conventional type, including a front section 22, bottom section 26, rear section 20 and top section 24, each formed of face material 16 with reinforcing cleats 18 and 34 secured thereto adjacent the lateral edges of the box blank. The several box sections are foldably secured together by binding wires 35 (see FIGURE 4) secured to the sections by staples 37 (FIGURE 4) driven astride the binding wires through the face material 16 and into the cleats 18 and 34. The ends of the binding wires are formed into interlocking fasteners 39 and 41 which come into opposition at the closing corner of the box and are interengaged to secure the box closed.

The sheet member 2 is incorporated in the wirebound box blank so that it extends across and lies substantially flat against the inner faces of the front section 22, bottom section 26 and rear section 20 of the box blank, with the laterally projecting flaps 14 interposed between the face material 16 and cleats 18 on these sections to secure the sheet member 2 to the box blank. As shown in FIGURE 2, the transverse edges of the flaps 14 are generally coincident with the transverse edges of the front and rear sections 22 and 20, respectively, and the lateral edges of these flaps 14 are generally coincident with the lateral edges of the box sections. The score lines 10 are approximately coincident with the transverse edges of the bottom section 26 of the box blank.

The top section 24 and bottom section 26 of the box blank may be fully lined with a similar cushioning sheet material such as corrugated fibreboard 28, which may also be provided with notches 30 for ventilation.

When the box blank is flat, or knocked down, as shown in FIGURE 2, the folded sheet member 2 lies substantially flat against the inner face of the blank. As illustrated in FIGURE 3, when the box blank is folded to set up the box, the front section 22 and the rear section 20 are bent upwardly about the bottom section 26 and, as this is done, the central portion 38—38 of the sheet member 2 is folded along the longitudinal scoring line 6 to raise the two halves 38 of the central portion, as indicated by the arrow D, until they are both vertical and in face-to-face contact at the center of the box. Simultaneously, the sheet member 2 is folded along the transverse score lines 10, as indicated by the arrows C, until, when the box is fully folded, as shown in FIGURE 4, the triangular...
portions 36 of the sheet member 2 between the score lines 10 and 12, lie flat against the inner faces of the front and rear sections of the box, with the fold formed along the central longitudinal score line 6 lying adjacent the inner face of the bottom section 26, and the folds formed along the transverse score lines 10, 13, 16, 19, and 22 lying adjacent the inner faces of the front section 22 and rear section 20.

With the box thus folded into box form, the end sections 40 are secured in the usual manner. These end sections 40, like the remaining sections of the box blank, may be fully lined with cushioning sheet material so that the completed box is fully lined with cushioning material.

It will therefore be seen that the present invention provides a practical and economical box blank which may be shipped and stored flat, but which contains an integral sheet member which may be quickly and easily folded to provide a box having a reinforced, self-aligning central partition which divides the container into two compartments. However, it should be emphasized that the particular container which is illustrated in the drawings and described in this specification is intended as merely illustrative of the principles of the invention rather than as restrictive of the scope thereof, which is limited only by the appended claims.

I claim:

1. In a wirebound box blank of the type having front, bottom, rear and top sections formed of face material with reinforcing cleats secured thereto adjacent the lateral edges of the box blank, with the several sections foldably secured together by binding wires stapled thereto, an integral partition comprising a unitary piece of foldable sheet material formed to provide a central portion extending longitudinally of the box blank across said front, bottom and rear sections, with the portions of said sheet material overlying said front and rear sections being cut along a central, longitudinal line and, obliquely folded from adjacent the inner end of such cuts to the transverse edges of the material to form four flaps which extend transversely of said front and rear sections beneath said central portion, with the end portions of said end flaps being sandwiched between the face material and cleats at opposite edges of said front and rear sections, said central portion lying generally flat against said bottom section when said box blank is flat, but being foldable along spaced, parallel transverse lines generally coincident with the transverse edges of said bottom section, and also being foldable along a longitudinal line extending between the inner ends of said cuts, whereby when the box blank is folded to set up the box, said central portion may be folded along said longitudinal and transverse lines to form a double-walled center partition extending generally perpendicularly to said bottom section and to the folded front and rear sections, with the fold formed along said longitudinal line lying adjacent the inner face of said bottom section and the folds formed along said transverse lines lying adjacent the inner faces of said front and rear sections.

2. A wirebound box blank as claimed in claim 1 in which said sheet material is scored along said longitudinal line and along said transverse lines to facilitate folding thereof.

3. In a wirebound box blank of the type having front, bottom, rear and top sections formed of face material with reinforcing cleats secured thereto adjacent the lateral edges of the box blank, with the several sections foldably secured together by binding wires stapled thereto, said bottom and top sections being lined with cushioning sheet material such as corrugated fibreboard, an integral partition comprising a separate, unitary piece of cushioning sheet material being formed to provide a central portion having a width approximately equal to twice the length of the front and rear sections (measured lengthwise of the box blank), and overlying said front, bottom and rear sections, with the portions of said sheet material overlying said front and rear sections being cut along a central, longitudinal line, and folded along lines extending obliquely from adjacent the inner face of such cuts to the transverse edge of the material to form four flaps extending transversely of said front and rear sections with their transverse edges approximately coincident with the transverse edges of said front and rear sections, with their outer lateral edges approximately coincident with the lateral edges of said box blank and with their end portions sandwiched between the face material and cleats of said front and rear sections, said central portion lying generally flat against said bottom section when said box blank is flat, but being scored for folding along a longitudinal line extending between the inner ends of said cuts, and along spaced, parallel transverse lines generally coincident with the transverse edges of said bottom section, whereby when the box blank is folded to set up the box, said central portion may be folded along said longitudinal and transverse lines to form a double-walled center partition extending generally perpendicularly to said bottom section and to the folded front and rear sections, with its upper edge aligned with the upper edges of said front and rear sections and with the fold formed along said longitudinal line lying adjacent the inner face of said bottom section and the folds formed along said transverse lines lying adjacent the inner faces of said front and rear sections, thereby providing a fully lined, centrally partitioned box.

References Cited in the file of this patent

UNITED STATES PATENTS

1,785,898 Hale ------------ Dec. 23, 1930
2,389,222 Walsh ------------ Nov. 20, 1945
2,698,109 Hogan et al. ------- Dec. 28, 1954