This invention relates to covers for wirebound boxes; more particularly, this invention relates to covers which can be locked in place on a wirebound box without the use of staples, wires, or other such fastening means. Still more particularly, this invention relates to covers for wirebound boxes in which a portion of the cover itself is used to lock the cover in place on the box.

In many applications it is desirable to use a non-wirebound cover for a wirebound box. For example, in many applications there are a number of advantages in using fiberboard covers. However, many of the advantages of such covers are lost if means such as staples, wires or other supplemental fastening means are required to attach such covers to wirebound boxes. Therefore, some fiberboard wirebound box covers have been adapted to be secured in place by means of fiberboard flaps which engage with a portion of the box to fasten the cover in place.

These previous flap fasteners have a number of disadvantages. Typically, they are formed by making cuts in the fiberboard cover and bending the flaps so as to cause them to engage with a reinforcing cleat of the box. Because of the shape of the flaps and of the cuts used to make them, the flaps tear easily under the stress of forces tending to remove the cover. Thus, such prior covers have proved to be relatively easily knocked off when the box is being transported.

Furthermore, many prior covers are constructed so that when the cover is removed it is either disassembled or torn and destroyed by such removal. In either case the result is that it is not practical to re-use the cover after it has been removed.

Accordingly, it is an object of this invention to provide a cover for a wirebound box which is easily secured to the box without the use of supplemental fastening means and which is highly resistant to being torn off the box. A further object of the present invention is to provide such a cover which can be removed from the box without destroying or disassembling the cover, thus making the cover easily reusable.

Wirebound boxes are formed of box sections made of strips of face material, usually wood, which are secured together by wires. These box sections have reinforcing cleats secured to them. In one type of wirebound box, these cleats are located around the periphery of each end of the box. Thus, there, along the top edge at each end of the box, a cleat which projects outwardly from the box end and provides a convenient hand-hold member by which the box easily can be grasped to be lifted.

Previous fiberboard covers used on such wirebound boxes have ends which depend downwardly over each end of the box so as to extend below the top cleat, thus undesirably interfering with the use of the top cleat as a hand-hold in lifting the box. In fact, since the top cleat is covered, the lower edge of such prior covers is often grasped in lifting the box, thus causing the cover to be ripped off. Although holes sometimes are cut in the fiberboard of such prior covers to give a certain degree of access to the top cleat, the provision of such holes is not a fully satisfactory solution to the problem. It often is not practical to make the holes large enough to accommodate the hands of most workmen without greatly weakening the cover structure. Hence, such hand-holes often are not used by workers handling the boxes, with the result that the covers are ripped off just as if the hand-holes were not present.

Accordingly, it is another object of this invention to provide a wirebound box cover which gives ready access to external hand-hold members on the boxes, while still locking securely in place and having the other desirable features mentioned above.

A further object of the present invention is to provide such a cover which is simple in construction, simple to use, and is inexpensive to manufacture.

The drawings and descriptions that follow describe the invention and indicate some of the ways in which it can be used. In addition, some of the advantages provided by the invention will be pointed out.

In the drawings:

FIGURE 1 is a perspective, partially cut-away view of a cover constructed in accordance with the present invention, with the cover being shown in place upon a wirebound box;

FIGURE 2 is a cross-sectional view taken along line 2—2 of FIGURE 1, in the direction indicated by the arrows; and

FIGURE 3 is a plan view of the cover shown in FIGURE 1, in its unfolded condition.

Referring now to FIGURE 1, a cover 10 constructed in accordance with the present invention is shown in place on a wirebound box 12. Wirebound box 12 includes a number of box sections 14 made of face material such as wood and staples 18. Four reinforcing cleats are secured to each end of box sections 14 by means of staples 18. These cleats include two side cleats 20 and 22, a bottom cleat 24 and a top cleat 26.

The top side of the box 12 is open. It has ends 28 which are made of face material such as wood or fiberboard. Box ends 28 are preferably secured to the inside surface of one or more of the reinforcing cleats. Thus, the cleats extend outwardly from the box ends 28, and the top cleat 36 provides a convenient hand-hold for use in lifting the box.

Referring now to FIGURE 3 as well as FIGURE 1, the cover 10 is formed from a sheet of material capable of being bent into the shape desired. Preferably, this material is fiberboard. FIGURE 3 shows the cover material before it is folded together to form a completed cover. The material is scored and then folded along the dashed lines. The long portions 30 are folded to form two sides of the cover, and two other portions 32 are folded down to form its ends. Flaps 34 on portions 30 are folded inwardly. The outermost section of each portion 32 is then folded upwardly so as to grip flaps 34. Small tabs 36 on the end of portions 32 are inserted upwardly through mating holes 38 to lock the ends of the cover in place. Ventilating holes 40 are provided. The completed cover has the shape of a shallow tray which is positioned bottom-up on the open side of the box 12.

Each of the cover ends 32 is cut out in region 42 so as to form the structure for a hand-hold slot and a pair of locking tabs 44. Tabs 44 are formed by cutting the cover material along lines 46 (see FIGURE 3) and scoring the material along dashed lines 48 on the side of the material opposite to the side upon which the other scoring is done.

As is shown in FIGURE 1, when the cover is folded the cut-out portions 42 form hand-hold slots 50 at each end of the cover 10. The distance 1 between the innermost edge of slot 42 and the fold line 52 is given a value such that the top of each hand-hold slot 50 in the cover 10 is substantially flush with the underside of the top reinforcing cleat 26, thus providing easy access for the hand in grasping the box on the underside of the top cleat.
Lines 46, which define the upper edges of tabs 44, are located so that they also are flush with the underside of top cleat 26 when the cover is folded.

As is shown in FIGURE 1, and, in greater detail, in FIGURE 2, tabs 44 are positioned in hand-hold slot 50 so that when the hand is inserted into slot 50 tabs 44 automatically will be bent inwardly so that their upper edges 46 will be pushed underneath the top cleat 26 so as to frictionally engage the underside of cleat 26 and lock the cover 10 in place.

Tabs 44 hold the cover 10 on the box 12 securely and reliably. The lines 48 along which the tabs 44 are folded are aligned in the direction in which the cover is moved to remove it from atop the box. In this manner, the tabs 44 are bent along lines substantially co-directional with a majority of the forces tending to tear the cover off of the box. These bending lines 48 also are substantially perpendicular to the lower surface of top cleat 26. With this arrangement, the tabs are strongly resistant to tearing under the stress of forces tending to remove the cover from the box. It is believed that the majority of such forces act upon the tabs 44 in a direction parallel to the plane of the cover end 32. This spreads the tearing effect of such forces over the whole extent of each tab, thus providing strong resistance to tearing. This is in contrast to previous lock flap arrangements in which, it is believed, such forces were applied to the flaps in a direction perpendicular to the plane of the cover end, thus localizing the tearing effect of such forces and allowing the flaps to be torn off relatively easily.

Continued handling of wirebound boxes using prior covers has the tendency to weaken the cover lock or rip the cover off. In contrast, since the insertion of a hand in a hand-hold slot 50 of the cover 10 of the present invention tends to push the flaps 44 into locking position, continued handling of the box 12 using the cover 10 tends to maintain the cover securely on the box. Thus, the present invention provides advantageous use of an activity that tends to destroy and remove prior covers.

Another advantageous feature of the cover 10 is that it is easily removed by merely bending flaps 44 outwardly so that they no longer engage the lower surface of top cleat 26. Thus, the cover is not destroyed or disassembled by its removal, and is readily reusable.

The above description of the invention is intended to be illustrative and not limiting. Various changes or modifications in the embodiments described may occur to those skilled in the art and these can be made without departing from the spirit or scope of the invention as set forth in the claims.

I claim:

1. The combination of a wirebound box and a fiberboard cover for said wirebound box, said wirebound box comprising a plurality of box sections formed of face material, said sections being foldably secured to one another by binding wires fastened to them and being reinforced with reinforcing cleats secured to said face mate-

rial adjacent each end of said box, and box ends made of face material and positioned adjacent the inner faces of said cleats at each end of said box, said wirebound box having one open side with one of said cleats being positioned along the edge of said open side at each of said ends, said cover comprising a fiberboard sheet having the shape of a shallow tray whose bottom has a shape conforming to the shape of said open side of said box, the sides of said tray-shaped cover which are located at the ends of said box each extending beyond said one cleat on said box end when said cover is placed bottom-up on said open side of said box, each of said sides of said cover having a cut-out portion adjacent its edge, said cut-out portion having a depth such that the lower surface of said one cleat is exposed when said cover is in place, and a width approximately equal to the span between the four longest fingers of the average adult human hand, and a pair of flaps each of which is integral with one edge of said cut-out portion, each of said flaps being bent inwardly under said cleat along a line substantially perpendicular to said bottom of said tray-shaped cover to hold said cover in place on said box.

2. A wirebound box comprising end walls and side walls bound together with wires and forming an open top for said box, a pair of reinforcing members each of which is secured to and extends laterally across and outwardly from one of said box ends, a detachable cover for covering said open top of said box, and locking means for securing said cover onto said box, said locking means comprising a pair of end flaps each of which is integral with one end of said covers and, when said cover is in place on said box top, extends below one of said end members, each of said end flaps having an opening with side edges substantially perpendicular to the plane of said box top, and two laterally-spaced locking flaps each of which is integral with said end flap and is folded inwardly under one of said reinforcing members along a line defining one of said substantially perpendicular side edges of said opening.

3. A wirebound box as in claim 2 in which the uppermost edge of said opening in each of said end flaps extends at least substantially up to the lower surface of one of said reinforcing members, and in which the width of said opening between said side-edges is approximately equal to the span between the four longest fingers of the average adult human hand.

References Cited by the Examiner

UNITED STATES PATENTS

2,250,453 9/1946 Williams .............. 229—45
2,251,814 5/1951 Rushing et al. .......... 229—45
2,392,669 4/1952 Dedman .............. 217—36
2,809,775 10/1957 White ............... 229—45
2,858,059 10/1958 Kitchell ............. 229—45

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