Feb. 23, 1943. S. W. PARSONS 2,311,961

BOX BINDING STRIP

Filed Feb. 26, 1941

Fig. 1

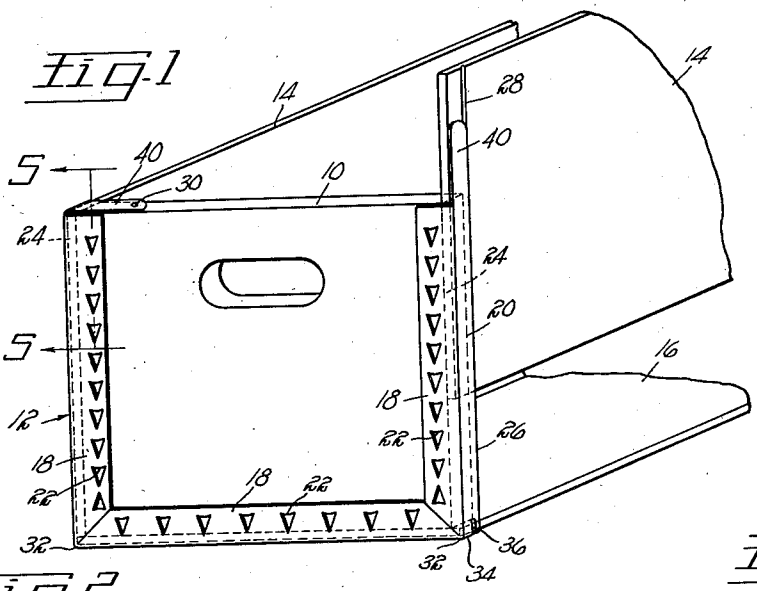


Fig. 2

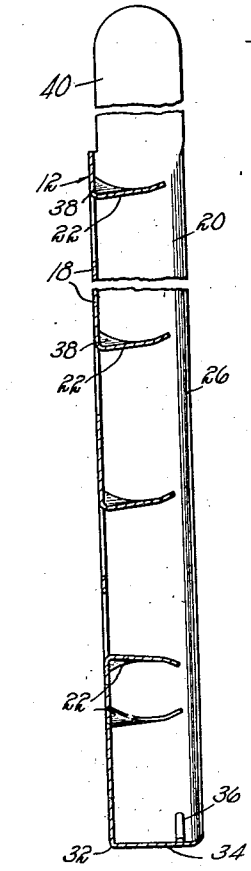


Fig. 3

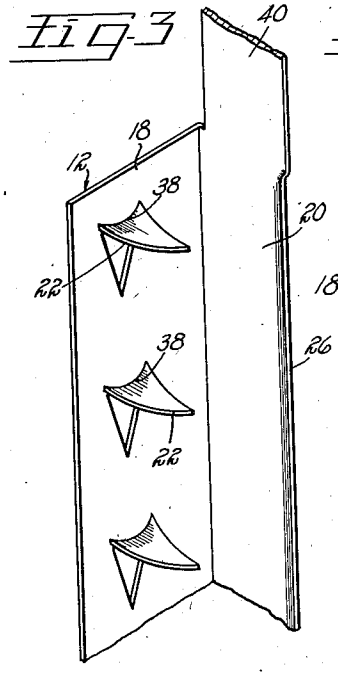


Fig. 4

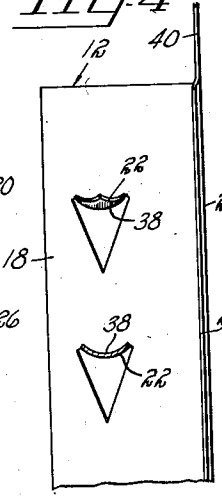
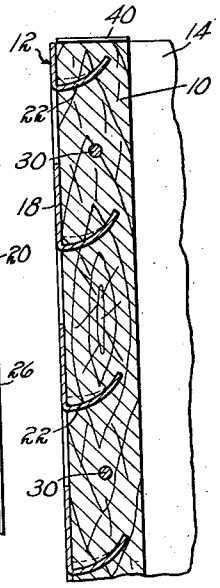


Fig. 5



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BOX BINDING STRIP

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3 Claims. (Cl. 217—66)

The present invention relates to an improved binding strip which has been found particularly advantageous in assembling and securing the walls of boxes of the type used to transport glassware and bottled goods.

The construction of the improved binding strip is such that it can be initially secured to the end wall of a box with a minimum of difficulty and effort and thereafter the subsequent attachment of the side and bottom walls of the box can be easily facilitated. Binding strips made in accordance with the present invention can be employed without in any way marring or damaging the walls of the box, and without the use of special machinery. Moreover, the construction of the binding strips is such that in the completed box there are no exposed edges or sharp corners which may cause injury to persons handling the box or to the surface upon which the boxes are placed or over which they are slid.

A further advantage of the present binding strip resides in the integral, spaced, securing teeth which are a substantial improvement over any heretofore used and which, during and following securement to a box wall, are substantially failureproof.

A still further advantage is the provision of a novel tooth having an improved driving action into hard wood and wood which has been previously painted or enameled and consequently has a hard casing or skin which stubbornly resists penetration.

In addition the resultant box structure is an extremely strong one capable of withstanding considerable abuse and of such construction that it may be economically manufactured in large quantities.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing:

Figure 1 is a perspective view of a portion of a box embodying the present invention and illustrating the ready means of assembly provided thereby;

Fig. 2 is an enlarged cross-sectional profile view of a binding strip formed in accordance with the present invention;

Fig. 3 is a perspective view showing details as to the shape of the securing teeth formed integrally with the binding strip;

Fig. 4 is a plan view of a portion of the flange wherein two such teeth are formed, one of which is cross-sectioned; and

Fig. 5 is a cross-sectional view taken substantially along the line 5—5 of Figure 1 and shows the securing teeth driven home into the end closure.

Referring to the drawing, there is illustrated a portion of a box in which the present invention is ultilized. The box comprises generally an end piece 10 formed of relatively light wood and having integrally secured to three of its edges a light angular metal binding strip 12 which positions and helps to secure the side and bottom walls 14 and 16. More specifically the end wall 10 is rectangular and the binding strip 12, which has a base flange 18 and a side flange 20 at right angles thereto, is cut and bent to form a substantially U-shaped member engageable with the wall 10 adjacent three edges thereof. The base flange 18 is secured to the end wall by suitable integral securing members or teeth 22 so as to position the side flange 20 away from the side and bottom edges of the end base 10 and thereby define a receiving groove 24 of like depth to the thickness of the side and bottom walls 14 and 16 in which the ends of same are received and secured. To assist in positioning and securing the ends of the walls 14 the free edge of the peripheral flange 20 has an inturned lip 26 receivable within a groove or scoring 28 in the side and bottom walls. The lip 26 and scoring 28 cooperate during assembly of the box to temporarily interlock the box walls until the securing nails 30 are driven through the flange 20. When so secured the inturned lip 26 remains positioned within the scoring 28 and as the exposed portion of the flange 20 which lies outwardly of the groove 28 presents a rounded edge, the case may be readily slid about without injuring the surfaces upon which it slides. To further facilitate the handling of the boxes the corners of the binding strip are rounded as at 32, to produce a caster effect and further guard against the danger of scoring or cutting the surfaces upon which the cases are slid.

To economically and conveniently produce a binding strip having the aforementioned characteristics and advantages, the metal end pieces may be cut to proper length from a continuous metal strip of proper right-angular cross-section. The strips have cut therein 90° V-shaped notches to permit the bending at the corner edge

34 and allow the strips to extend at right angles and to thereby form the U-shaped member substantially as shown. To prevent ballooning or bulging out of the side flange 20 when bent at right angles to the edge 34, there is struck therein a reinforcing rib 36 having its raised portion on the inner side of the flange. The rib 36 extends an equal distance to each side of the edge 34 and the completed end base constitutes a right-angular rib which maintains the corners of the binding strip parallel to the wooden corner of the box. The binding strip 12 is secured to the end member by the aforementioned teeth 22. According to the present invention the teeth are V-shaped tabs struck from the flange 18 adjacent its free edge. In stamping out the teeth the bases or joinders 38 form crescents that are convex to the opening from which the teeth are struck. When thus formed the teeth curve laterally through their entire length substantially as illustrated in Figs. 3 and 4. This lateral curvature gives the teeth greater strength and it assures sufficient rigidity so that the teeth will not crumple or fail as they are driven into the wall 10, even though it is a hard wood wall or has been painted or enameled so that it has a hard casing which stubbornly resists penetration.

As the members 10 are of relatively thin wood the teeth are curved longitudinally, as best illustrated in Fig. 2 so that when driven into the wood they tend to take a more pronounced curvature as illustrated in Fig. 5 and thereby obtain a clinching effect without the teeth protruding inside of the box. Thus, no resultant sharp points extend into the box that might injure the contents contained therein. The curvature is such that the length of the teeth may be equal to (or even slightly longer than) the thickness of the end pieces. The curvature adjacent the point of the tip is more pronounced so that as the tooth is driven into the end 10 the under surfaces of the tooth function as a cam and forces the point to turn back towards the end flange 18 so as to lie wholly within the thickness of the end piece.

Upon securing of the binding strip to the end piece, the box may be readily assembled by forcing the end of the bottom wall 16 into the groove 24 until the inturned lip 26 snaps into the groove 28 and by thereafter sliding the side walls into position substantially as illustrated in Figure 1. When so assembled the nails are driven through the peripheral flange 20 to rigidly secure the box members together. With the box so constructed the binding pieces 12 not only reinforce the ends but completely cover the edges of all the wooden members, thus preventing any splintering of the wood upon handling of the box. In addition, as the flanges 20 are substantially flush with the outer surfaces of the side and bottom walls, and as the corners of the binding pieces are rounded, the boxes may readily be handled without injury to the surfaces over which they are passed or injury to those handling them.

As illustrated in Figure 1, the tops of the side flanges 20 may be provided with tabs 40 which may be bent over so as to eliminate one more rough edge which might otherwise cause injury. The tabs are fastened therein by a nail 30 thereby giving a more finished appearance to the box.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A metal binding strip for securing the members of a box, said strip having triangular shaped teeth struck therefrom for fastening the binding strip to the underlying box member, each tooth having a lateral curvature for greater strength and rigidity, whereby the base of the tooth is convex relative to the opening from which the teeth are struck, and each tooth also having a longitudinal curvature extending forwardly and away from the opening from which the tooth is struck, whereby each tooth develops a clinching action when driven into the box member.

2. A metal binding strip for securing the members of a box, said strip having triangular shaped teeth struck therefrom for fastening the binding strip to the underlying box member, each tooth having a lateral curvature for greater strength and rigidity, whereby the base of the tooth is convex relative to the opening from which the teeth are struck, and each tooth also having a longitudinal curvature extending forwardly and away from the opening from which the tooth is struck, whereby each tooth develops a clinching action when driven into the box member, the longitudinal curvature adjacent the tip of each tooth being more pronounced to more effectively turn the tooth as it is driven home.

3. A metal binding strip for securing the end and side members of a box, said strip being of right angular cross section to provide an end facing flange adapted to overlie the end member of the box and a side facing flange adapted to overlie the side members of the box, said tooth having triangular shaped teeth struck from the end facing flange for fastening the strip to the underlying box member, each tooth having a lateral curvature for greater strength and rigidity, whereby the base of the tooth is convex relative to the opening from which the teeth are struck, and each tooth also having a longitudinal curvature extending forwardly and away from the opening from which the tooth is struck, whereby each tooth develops a clinching action when driven into the box member, and said side flange terminating in a lip turned inwardly towards the underlying side members.

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