Oct. 31, 1933. A. L. ROSENMUND 1,933,030

BOX AND CRATE

Original Filed Sept. 9, 1931 2 Sheets-Sheet 1

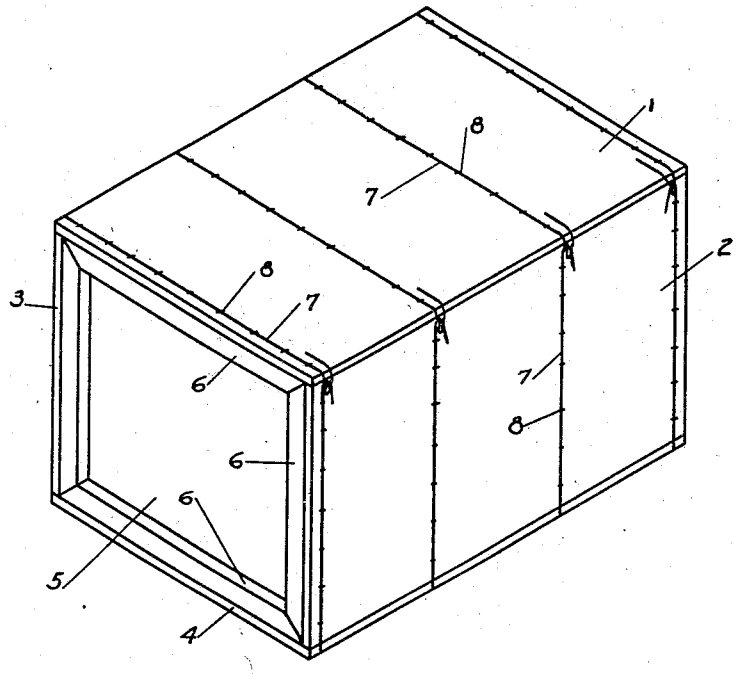


FIG-1

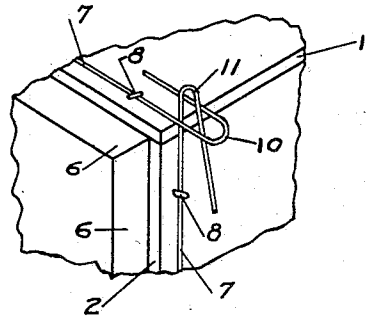


FIG-2

INVENTOR.
Alfred L. Rosenmund
BY
Janney, Klein & Curtis
ATTORNEYS.

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BOX AND CRATE

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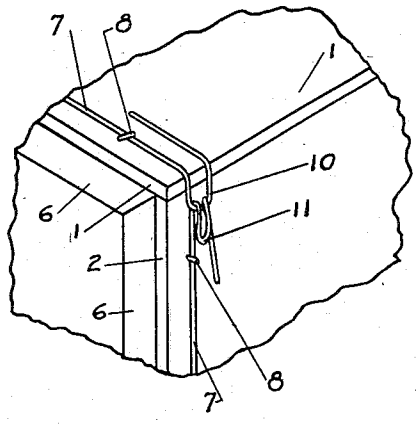


FIG-3

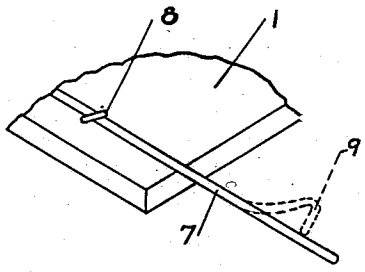


FIG-4

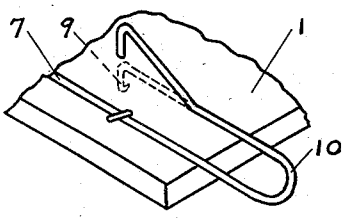


FIG-5

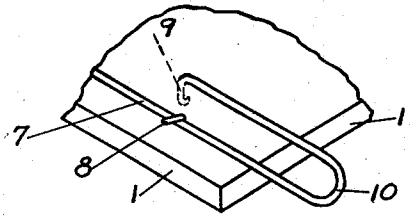


FIG-6

INVENTOR.
Alfred L. Rosenmund
BY
Janney, Blair & Curtis
ATTORNEYS.

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UNITED STATES PATENT OFFICE

1,933,030

BOX AND CRATE

Alfred L. Rosenmund, Rockaway, N. J., assignor to Stapling Machines Co., a corporation of Delaware

Original application September 9, 1931, Serial No. 561,821. Divided and this application May 4, 1932. Serial No. 609,053

10 Claims. (Cl. 217—71)

This invention relates to boxes and crates and particularly to wirebound boxes and crates.

It is an object of the invention to provide an efficient means for connecting adjacent box or crate parts.

It is a further object to provide a fastening means for connecting box parts which is strong and durable, yet inexpensive.

It is a further object to provide a fastening means of the character described which may be readily manipulated to open and closed positions without employing a specially constructed tool or mechanical device.

It is a further object to provide a fastening means of the character described which is adapted to resist relative longitudinal shifting of meeting edges of adjacent box parts.

It is a further object to utilize the binding wires of adjacent wirebound box parts as a fastening means for detachably connecting said parts.

It is a further object to provide a means of separably uniting the flexible binders of adjacent box parts in such manner as to bury the binder ends.

It is a further object of the invention to provide a means of completing the continuity of a box encircling binder in such manner as to bury the ends of the binder and permit a ready breaking and re-making of the continuity of the binder without exposing the binder ends.

In the drawings:—

Figure 1 is a perspective view of a wirebound box embodying the invention.

Fig. 2 is an enlarged view of a closing corner of the box and showing one of the binders provided with the illustrative fastening means.

Fig. 3 is a similar view showing the manner of connecting adjacent sections by hooking one fastener through the other.

Figs. 4, 5 and 6 are enlarged views of a box part and binding wire stapled thereto and illustrating the manner of manipulating the wire to provide a fastener for connecting the box part to another box part.

The illustrative box consists of a top section 1, a front section 2, a rear section 3, a bottom section 4, and end sections 5. The sections may be reenforced at either end of the box by cleats 6. Encircling the top, rear, front and bottom sections are a plurality of flexible binders 7 (preferably wires) secured to the sections by staples 8 which preferably pass through the sections and are clinched to firmly secure the binders to the sections. The flexible binders 7 at the upper rear corner edge of the box function as hinges to permit raising the top section for inserting the commodity to be shipped. When the box is filled with its contents the top section is lowered to close the box and the ends of the binders are connected to complete the continuity of the binders and hold the top section in closed position.

Heretofore the ends of each binder 7 have been intertwisted to complete the continuity of the binder. Such intertwisting has been objectionable because the sharp ends of the binder remained exposed to cut the hands or clothing of those persons who handled the box; and also because such an intertwisting necessitated a cutting of the binder to open the box and thus render the box unfit for a repeated opening and closing. Attempts have been made to provide a fastener which would permit a ready opening and closing of the box without cutting the wires. Such attempts took the form of loops formed on each end of the binder by bending the binder back upon itself and wrapping the loose end about the body of the binder, one loop being smaller than the other to permit passing the smaller loop through the larger loop and then bending the smaller loop back upon itself. Such looped fasteners were objectionable because they required accuracy of adjustment and alignment relative to the box edges and to each other, and also because the sharp binder ends remained exposed, as in the ordinary intertwisting of the wire ends.

Applicant has provided a fastener for completing the continuity of the binder which eliminates the objections referred to above, and which also functions to resist longitudinal shifting of adjacent box sections.

Referring to Fig. 4 the binder 7 which extends beyond the front edge of top section 1 is bent at its end (as shown in dotted lines) to provide a prong 9 long enough to be driven through the section 1 and clinched. The binder 7 is then bent to bring the prong 9 over the section 1, as shown in Fig. 5, and to provide a U-shaped bight 10 extending from the edge of the section. The prong 9 is then driven through the section 1 at a point relatively remote from the body of the binder 7 and is clinched on the under side of the section (as shown in dotted lines in Figs. 5 and 6). Thus, one leg of the U-shaped bight 10 is fixed to the section 1 by the staples 8, and the other leg is fixed to the section at a relatively remote point by the prong 9 and the end of the binder (which is now the end of the prong 9) is

buried in the underside of the section and is no longer exposed.

Similarly the other end of the binder 7 is provided with a prong 9, is bent around over the front section 2, and the prong 9 driven through the section 2 and clinched, thus providing a U-shaped bight 11 on the front section (see Fig. 2) to interengage with the bight 10 on the top section. In the illustrative box the bight 11 is made slightly narrower than the bight 10 to readily pass therethrough when the top section is lowered, but it will be understood that the sizes may be reversed to permit the bight 10 to be passed through the bight 11.

When the parts are in the interengaging position shown in Fig. 2, the bight 11 is bent downward over the bight 10 as shown in Fig. 3, thus locking the top section to the front section. Because the legs of each U-shaped bight are fixed to their respective sections at spaced points, the fastener as a whole resists relative longitudinal shifting of the top and front sections under stresses and strains, thus adding to the rigidity of the box.

To open the box the bight 11 may be raised to the position shown in Fig. 2, and the top section raised. The top may again be closed in the manner already described.

Such a fastening means is at least as strong as intertwisted wire ends, permits a ready opening and reclosing of the box, eliminates the objectionable exposed sharp ends of the binder, and increases the rigidity and durability of the box by resisting shifting of the box parts under strain. And all of these advantages are obtained by utilizing the binder as its own fastener in the manner described and without providing separate fastening means.

While the illustrative box shows the use of the fastening means for connecting the top and front sections of the box it will be understood that the fastener may be used for connecting other parts of a box or crate.

This application is a division of my co-pending application Serial No. 561,821, filed September 9, 1931.

I claim:

1. In a wirebound box, a wire binding encircling the box and stapled thereto, each end of said wire being bent to provide a prong and also bent back toward the body of the wire to provide a bight, and the prong being driven into the box side at a point relatively remote from the body of the wire to perpetuate the bight and bury the wire end whereby interengaging bights are provided on the wire at the closing corner of the box and the wire ends are not exposed exteriorly of the box.

2. In a wirebound box, a wire binding encircling the box and stapled thereto, each end of said wire being bent to provide a prong and also bent back toward the body of the wire to provide a bight, and the prong being driven into the box side to perpetuate the bight and bury the wire end whereby interengaging bights are provided on the wire at the closing corner of the box and the wire ends are not exposed exteriorly of the box.

3. In a wirebound box, a wire binding encircling the box and stapled thereto, each end of said wire being bent to provide a prong and also bent back toward the body of the wire to provide a bight, and the prong being driven into the box side to perpetuate the bight whereby interengaging bights are provided on the wire at the closing corner of the box and the wire ends are not exposed exteriorly of the box.

4. In a wirebound box, a wire binding encircling the box and stapled thereto, each end of said wire being bent back toward the body of the wire and driven into the box side to provide a bight, whereby interengaging bights are provided on the wire at the closing corner of the box and the wire ends are not exposed exteriorly of the box.

5. In combination with a box, an encircling binder secured thereto, each end of said binder being bent back and driven into a box side to form a bight and to bury the binder end, and the two bights thus formed being located for hooking engagement with each other.

6. A fastener for connecting adjacent box parts comprising a wire stapled to a box part and bent adjacent its end to form a bight and having its end driven into the box part to perpetuate the bight and bury the wire end; the bight thus formed being adapted to hook over a wire on another box part to connect the two.

7. In combination with a box part, a combined binder and fastener comprising a wire stapled to the box part and bent adjacent its end to provide a prong and bent intermediate the prong and the point of staple anchorage to provide a bight and having the prong driven into the box part to perpetuate the bight; the bight thus formed being adapted to connect its box part with another box part.

8. In combination with a box part, a combined binder and fastener comprising a flexible binder secured to the box part and bent adjacent its end to form a bight and having its end driven into the box part to perpetuate the bight, whereby a flexible bight is provided on the binder extending from the box part and adapted to connect the box part with another box part.

9. In combination with a box part, a combined binder and fastener comprising a flexible binder secured to the box part and bent adjacent each of its ends to form a bight adjacent each end of the binder, and having its ends driven into the box part to perpetuate the bights, whereby a flexible bight is provided on each end of the binder which is adapted to connect the box part with another box part.

10. In combination with a box, an encircling flexible binder secured thereto, each end of said binder being bent back and driven into a box side to form a bight, whereby the bight on one end of the binder may be hooked through the bight on the other end of the binder to complete the continuity thereof.

ALFRED L. ROSENMUND.