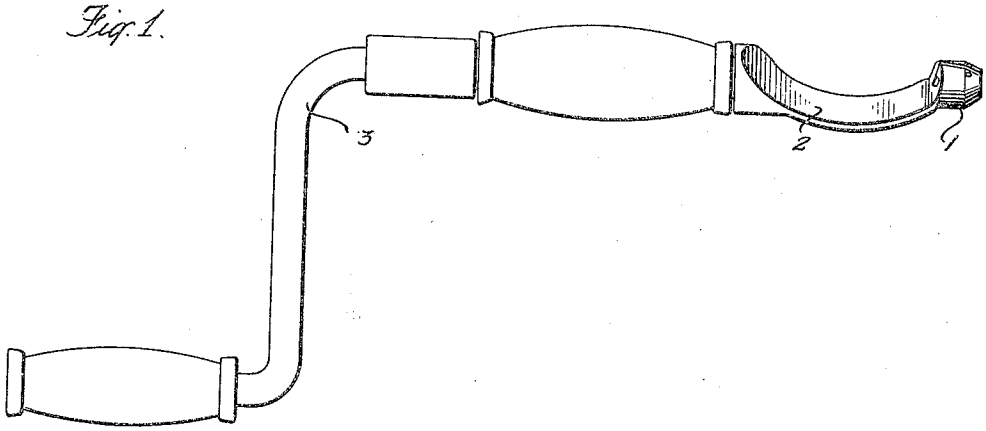
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WIRE JOINING TOOL

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Fig. 1.



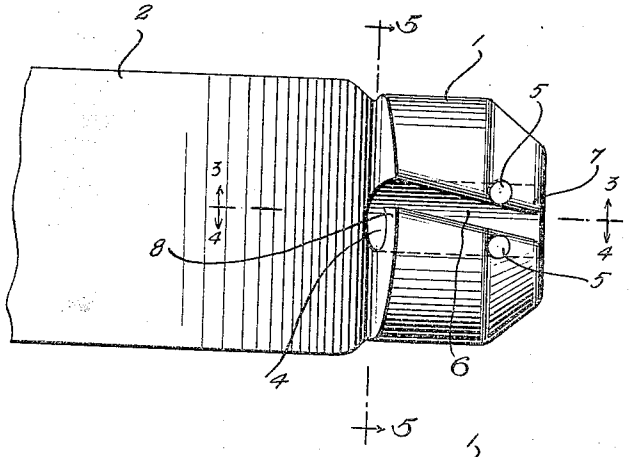


Fig. 2.

Fig. 3.

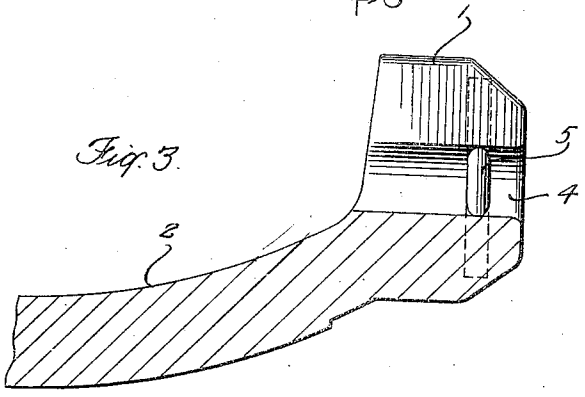
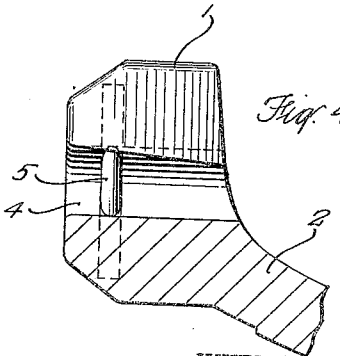


Fig. 4.



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Fig. 5.

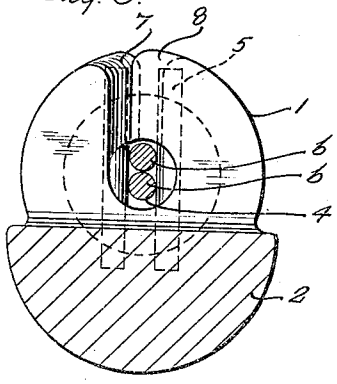


Fig. 6.

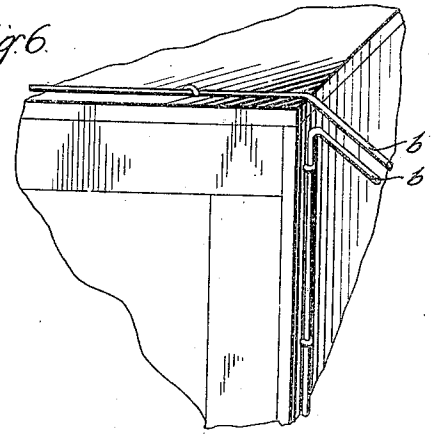


Fig. 7

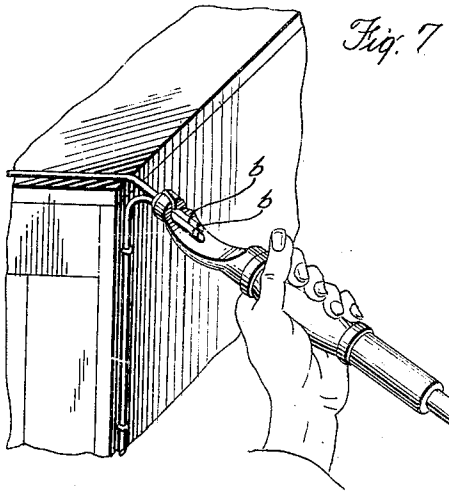
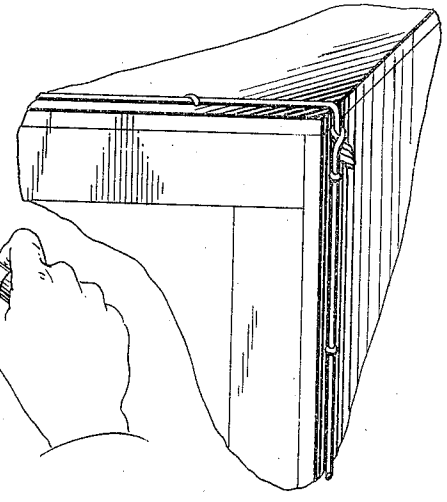


Fig. 8.



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Patented Aug. 9, 1932 1,871,029

UNITED STATES PATENT OFFICE

QUINCY WARD BOESÉ, OF NEW YORK, N. Y., ASSIGNOR TO STAPLING MACHINES CO., A CORPORATION OF DELAWARE

WIRE JOINING TOOL

Application filed October 22, 1930. Serial No. 490,431.

This invention relates to wire joining, and particularly to tools for joining wire bindings about boxes, crates and the like.

The primary object of the invention is to provide a twisting tool comprising few parts, and which is constructed and arranged to produce an efficient wire joinder with a minimum of time and effort, thereby reducing the cost of intertwisting the ends of package binding wires.

Wirebound boxes are usually provided with a plurality of binding wires (at least 3 and usually more) stapled to the box sides. To close such boxes the ends of each binding wire must be intertwisted. Twisting tools have been provided for this purpose having a bored twisting head to receive the wire ends, and two pins or gripping surfaces located in the bore to engage and intertwist the wires upon rotation of the head, the pins or gripping surfaces being positioned close enough together to hold the wire side and to sever or ring off the wire ends upon completion of the twist. Difficulty has been encountered in inserting the wires into the end of the bore and between the closely positioned pins or gripping surfaces, particularly when the wires are crimped or bent. It has been proposed to provide a slotted opening in the side of the head between the pins so that the wires may be inserted from the side of the bore instead of through its end opening. Such a construction facilitates the insertion of the wires into the bore, but, it has been found that unless some closure for the slotted opening is provided, the wires frequently move out of the bore through the slotted opening. The present invention is intended to overcome this objectionable feature of the slotted type of twisting tool.

One illustrative tool is shown in the accompanying drawings, in which:—

Figure 1 is a side elevation.

Fig. 2 is an enlarged top view of the nose of the tool.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is a section taken on the line 4—4 of Fig. 2.

Fig. 5 is a section taken on the line 5—5 of Fig. 2, and showing also the position of the two wire ends to be intertwisted.

Fig. 6 is a perspective view of a corner portion of a wirebound box, the wire ends on the lid and front side of which are to be joined to complete the continuity of the wire binding.

Fig. 7 is a similar view illustrating the use of the tool in joining the wire ends.

Fig. 8 is a similar view showing the completed joinder of the wire ends.

Referring to Fig. 1, the illustrative tool comprises a twisting head 1 carried by a shank 2, to which a brace 3 may be attached for convenience in turning the tool.

As shown in Fig. 2 the twisting head is bored at 4, preferably through its central axis, and is provided with two pins 5 extending into the bore on opposite sides thereof and spaced apart in parallelism a distance slightly in excess of the diameter of one of the wire ends to be intertwisted, so that, upon rotation of the head, the wires will be engaged by the pins 5 and intertwisted. Upon completion of the twist the pins 5 function to ring off the ends of the wire, leaving a blunt ended twist.

To facilitate the insertion of the wire ends into the bore 4 and to prevent their dislodgment therefrom after insertion, the head 1 is provided with a slotted opening 6 extending into the bore 4 between pins 5 and at an angle to the longitudinal axis of the bore. The width of the slotted opening 6 is substantially equal to the distance between the pins 5, and the diameter of the bore 4 is substantially greater than the width of the slotted opening 6, so that the angled location of the slot 6 leaves a covering portion for the bore at each end thereof, as shown at 7 and 8 in Figs. 2 and 5. Thus, when the wires are inserted at an angle to the axis of the bore through the angled slot 6 and are then straightened in the bore, they are confined therein by the portions 7 and 8, as shown in Fig. 5.

Figs. 6, 7 and 8 illustrate the manner of using the tool. The binding wire ends designated *b* in Fig. 6 are inserted one at a time through the angled slot 6 into the bore 4 and positioned under the portions 7 and 8. This

is usually done by the thumb of the operator. The wires are then in the position shown in Fig. 7, i. e., positioned side by side in the bore 4 between the pins 5 and held in the bore by the portions 7 and 8. The operator then grasps the tool in the manner shown in Fig. 7 and rotates the head until the twist is completed, as shown in Fig. 8. Upon rotation of the tool, pins 5 engage and grip the wires *b* and cause them to intertwist between the point where gripped and the box side. The intertwisting of the wires tensions the binding over the box corner and draws a portion of the body wire over the twist, as shown in Fig. 8. When the twist is completed the pins 5 ring off the tip of the twist.

Among other advantages the present invention reduces greatly the time required to intertwist binding wire ends, and is particularly advantageous for use in closing wire-bound boxes.

It will be understood that the invention is not limited to the specific embodiment shown herein for purposes of illustration, and that the inventive features of the illustrative tool may be embodied in a power driven tool or machine without departing from the invention.

I claim:

1. A tool for joining package wires by intertwisting comprising a twisting head bored substantially parallel with its central axis and provided with a slotted opening formed at an angle to the axis of the bore, and a member extending into the bore at either side of the slot to engage and twist the wires upon rotation of the head; the diameter of the bore being greater than the width of the slotted opening whereby when the wires have been straightened in the bore they are out of line with the slotted opening and are confined in the bore during rotation of the head.

2. A tool for joining package wires by intertwisting comprising a twisting head bored and slotted to receive the wires to be joined, and a pair of members extending into the bore at either side of the slot to engage and twist the wires upon rotation of the head; the slot being formed at an angle to the axis of the bore whereby the wires are confined in the bore during rotation of the head.

3. A tool for joining package wires by intertwisting comprising a twisting head bored and sloted to receive the wires to be joined, and members extending into the bore to engage and twist the wires upon rotation of the head; the slot being formed at an angle to the axis of the bore whereby the wires are confined in the bore during rotation of the head.

4. A tool for joining package wires comprising a twisting head bored and slotted to receive the wires to be joined, and means located in the bore to engage and twist the wires upon rotation of the head; the slot being formed at an angle to the axis of the bore, whereby the wires are confined in the bore during rotation of the head.

In testimony whereof, I have signed my name to this specification this 17th day of October, 1930.

QUINCY WARD BOESÉ.