Sept. 8, 1931. A. L. ROSENMUND 1,822,543

WIRE JOINING

Original Filed April 23, 1929 2 Sheets-Sheet 1

Fig. 1.

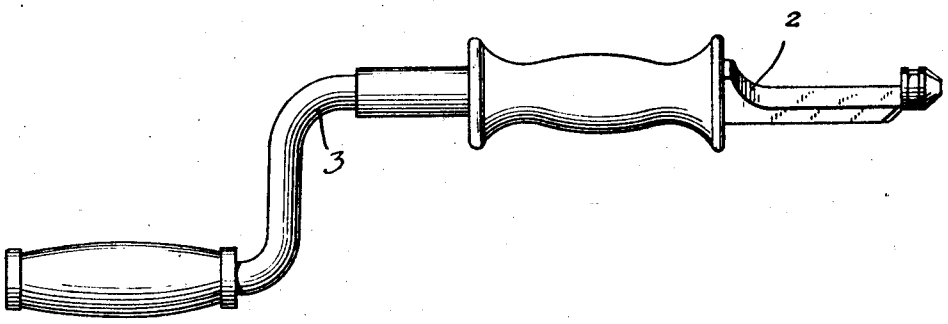


Fig. 2.

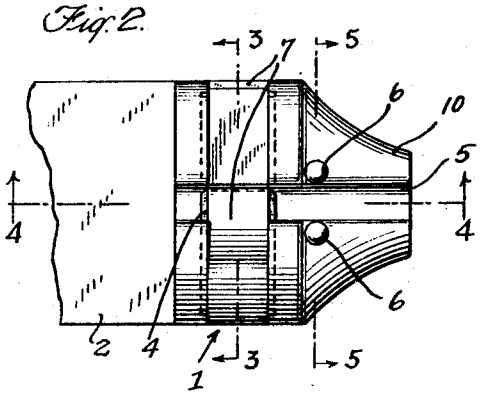


Fig. 3.

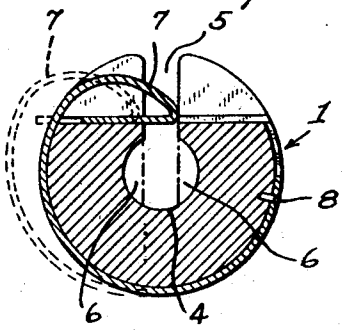


Fig. 4.

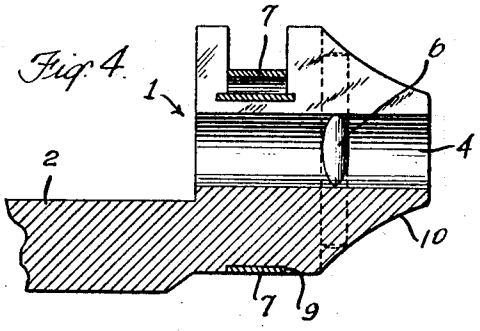
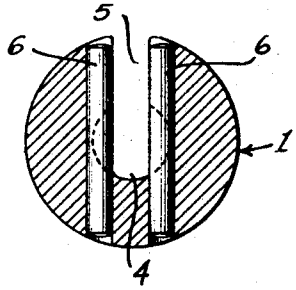


Fig. 5.



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Fig. 6.

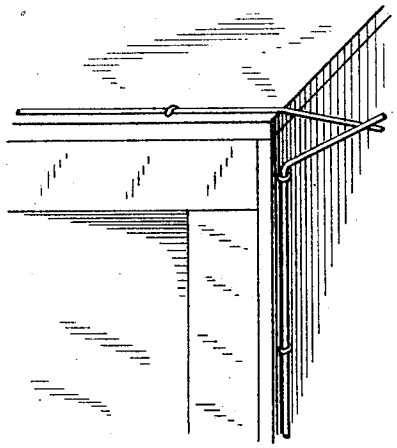


Fig. 7.

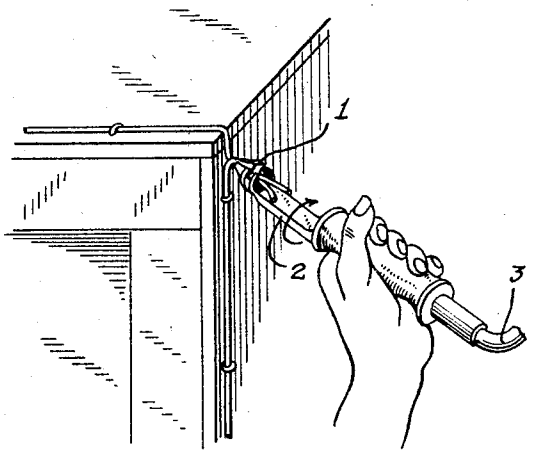


Fig. 8.

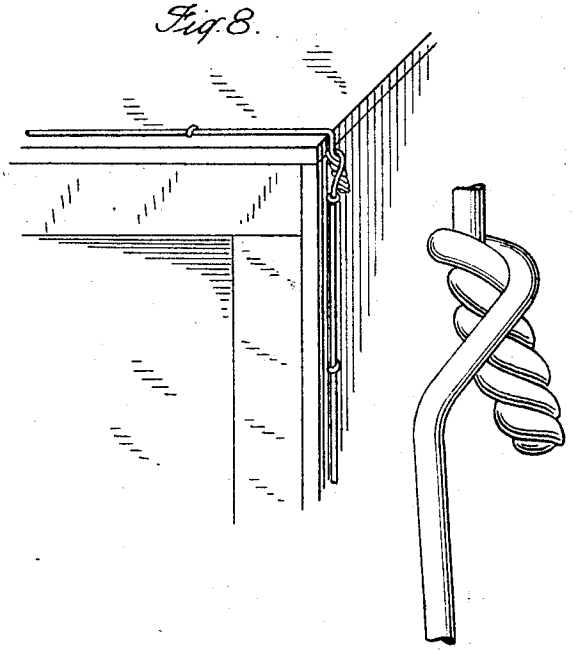


Fig. 9.

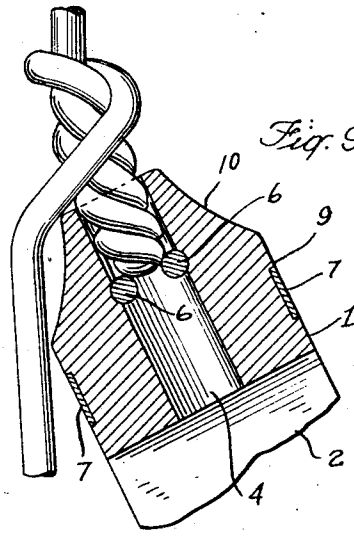


Fig. 10.

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1,822,543

UNITED STATES PATENT OFFICE

ALFRED L. ROSENMUND, OF ROCKAWAY BOROUGH, NEW JERSEY, ASSIGNOR TO STAPLING MACHINES CO., A CORPORATION OF DELAWARE

WIRE JOINING

Original application filed April 23, 1929, Serial No. 357,431. Divided and this application filed June 23, 1930. Serial No. 463,066.

This invention relates to wire joining and to methods of joining wires, wire bindings, or wire ties on or about boxes, crates, packages, bales, bundles or the like.

Among other objects the invention has in view the production of a strong, efficient joinder of wire ends.

The invention will be clearly understood from the following description of one illustrative joinder and one illustrative tool and method for producing the same.

In the drawings:—

Figure 1 is a side elevation of the illustrative tool.

Fig. 2 is an enlarged top plan view of the nose of the tool showing the wire receiving and gripping devices.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2 and showing, in dotted lines, the wire confining spring latch in open position.

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

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

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 perspective view illustrating the use of the tool in joining the wire ends.

Fig. 8 is a perspective of the box corner showing the completed joinder of the wire ends.

Fig. 9 is an enlarged view of the completed joinder and showing, in section, the position of the nose of the tool upon completion of the twisting operation.

Fig. 10 is an enlarged perspective of the completed joinder showing how the twist is disposed beneath the lower wire which has been drawn around and over the twist.

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.

The twisting head 1 is bored at 4 and slotted at 5 to receive the two strands of wire to be intertwisted, and is provided with co-operating wire gripping members 6 adapted to grip the wires transversely and to perform a wire severing action upon completion of the twist. The wire gripping and severing actions of the members 6 are shown and described in U. S. patent to Davidson, No. 1,453,446, of May 1, 1923, reference to which is hereby made for a detailed description of such actions.

As best shown in Fig. 3, a spring latch 7 may be provided to confine the wire strands in said bore during the twisting operation. Latch 7 is held by a pin 8 in a groove 9 formed in the outer surface of the head 1. Latch 7 is moved from its closed position (shown in full lines in Fig. 3) to its open position (shown in dotted lines in Fig. 3) by pressing the wire strands into the slot 5 and against the upper surface of the latch 7. When the wire strands have been forced past latch 7, it snaps back into closed position.

The slot 5 facilitates the operation of the tool. Heretofore, the wire strands were inserted endwise into the bore between the gripping members 6. Such an endwise insertion of the wire strands often caused considerable delay, especially if the strands happened to be bent or crimped.

The nose of the head 1 is preferably tapered as at 10 to permit the nose to assume a position between the lower strand of wire and the box side and to dispose the twist under or partially under said strand of wire. It has been found in practice that when the tool is held at an angle oblique to the perpendicular of the box side, the turning of the head will form a twist beneath the lower strand of wire and will draw the lower strand of wire over and about the twist, as shown in Fig. 10, thereby producing a knotted joint having a tendency to tighten under strain and closely approximating the tensile strength of the wire itself.

The method of joining the wire ends and the operation of the tool are best shown in Figs. 6 to 10 inclusive. The wire ends projecting from the box, as shown in Fig. 6, are pressed into slot 5, past latch 7 and into bore 4; latch 7 snapping over the wires and confining them in the bore. This pressing may

be done by the thumb of the operator. The tool is then preferably held at an angle oblique to the perpendicular of the box side and rotated a number of times until the twist is completed and the wires severed at the point where they are gripped by the members 6. During the turning movement the twist forms under the lower strand of wire which is drawn upward and around the twist forming the knotted joint shown in Fig. 10.

Among other advantages the invention produces a strong and efficient joinder which has a tendency to tighten under strain rather than to unravel.

It will be understood that the invention is not limited to the specific embodiment shown herein for illustration.

This application is a division of my copending application Serial No. 357,431, which was filed April 23, 1929.

I claim:

1. A wire joinder for wirebound packages comprising a twist formed by intertwisting the free ends of the package binding wire and located at least partially between the package and the body of the wire binding, whereby the body of the wire binding overlies at least a portion of the twist.

2. A method of joining the ends of a package binding wire which is characterized by gripping the wire ends a distance from a side of the package, and intertwisting the wire ends while holding them at an angle oblique to the perpendicular of the side of the package, whereby the body of the package binding wire will be drawn at least partially about and over the twist and form a knot having a tendency to tighten under strain.

3. A method of joining the ends of package reenforcing wires which is characterized by gripping the wire ends a distance from the side of the package, and intertwisting the wire ends while holding them at an angle oblique to the perpendicular of the side of the package, whereby at least a portion of the twist will lie between the package side and the body of a reenforcing wire.

4. A method of joining the ends of package reenforcing wires which is characterized by gripping the wire ends a distance from the side of the package, and intertwisting the wire ends while holding them at an angle oblique to the longitudinal of the body of the wire, whereby at least a portion of the twist will lie between the package side and the body of a reenforcing wire.

In testimony whereof, I have signed my name to this specification this 19th day of June, 1930.

ALFRED L. ROSENMUND.