

Dec. 29, 1931.

W. E. WHITE

1,838,124

BAR TIE

Original Filed Aug. 5, 1927

Fig. 1.

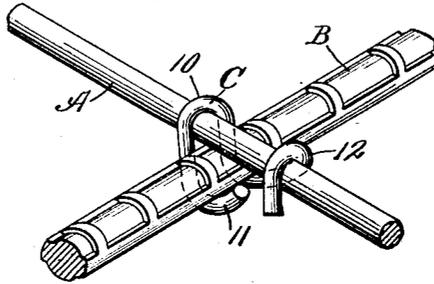


Fig. 2.

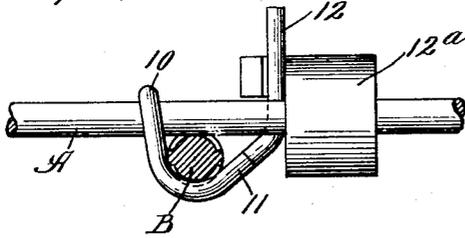
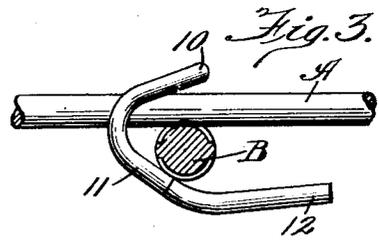


Fig. 3.



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UNITED STATES PATENT OFFICE

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BAR TIE

Continuation of application Serial No. 210,814, filed August 5, 1927. This application filed January 28, 1929. Serial No. 335,671.

This application is a continuation of my application filed August 5, 1927, Serial No. 210,814, and relates to bar ties and particularly to an improvement on the construction shown in my copending application Serial Number 20876 filed July 27, 1927.

As stated in the copending application referred to, a general object of the invention is to provide a simple tie that may be used for making up reinforcing mats or fabric in the field or at the roadside as the case may be. This is to avoid the expense incident to construction of such mats in the shop and shipping the same to their destination.

An object in the design here disclosed is to provide means that will securely hold crossed bars of two different forms, one bar or wire being relatively small and of uniform exterior contour. Mats made up in this manner, that is, with corrugated or ribbed reinforcing bars extending in one direction and plain smaller wires or bars extending in the other direction are commonly used, and the tie here disclosed serves to securely hold such intersecting member.

One of the difficulties in the design and application of a tie for the purpose described is to provide a preformed device adapted to be quickly installed without distortion and thereafter, by manipulation of one end only, to act as a secure hold for both crossed bars. This is accomplished in the tie here disclosed.

The invention will be more readily understood by reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a pair of crossed bars held in place by the tie of my invention;

Fig. 2 is a side elevation thereof before the long leg of the tie has been twisted around the intersecting bar; and

Fig. 3 is a view showing the tie in process of installation, the view being provided to show the necessity for the peculiar shape of the wire.

In the drawings, I have illustrated two crossed reinforcing bars, A, B the bar B being of the usual ribbed or corrugated form, and the bar A being smaller and plain. The

tie C is in the form of a length of wire bent into a loop and the loop doubled on itself in V-shape: that is, the two elements of the doubled loop lie at an acute angle to each other. The closed end 10 of the loop passes over the bar A and the base portion of the V into which the loop is bent receives the bar B. The free ends 11, 12 of the wire are of different length, the end 12 being much longer than the end 11. After the parts are positioned as shown in Figure 2 a suitable tool 12a is applied and the free end 12 is bent or twisted over the bar A at a point outside of the termination of the end 11. A relatively great force can be exerted on the tie, and, because of the spread of the points of contact of the tie with the bar A, a very secure engagement is assured. The V-shaped form of the tie enables this result to be secured. The tie is initially formed as shown in Figs. 2 and 3, in which form it may quickly be positioned without distortion, as shown in Fig. 2. Thereafter, by a single movement, the long end of the wire is bent over the bar A, as best shown in Fig. 1.

Inasmuch as the bars are of such size and rigidity that they cannot be bent or kinked by any force that may be applied manually in placing the tie, the holding capacity is determined by the force that may be exerted by the tool that acts on the long end of the tie. The tool is adapted to rotate about one of the bars as a center and the engaging jaw is so located as to exert a powerful bending action on the free end of the wire. By this bending action on the free end of the wire, the joint is firmly made and maintained. It will be understood that the crossed bars of a road mat are placed relatively close together and that a tie should be so designed that the bending motion necessary to complete the tie should be less than 180 degrees; this for the reason that the effective length of the tool should, in order to obtain the necessary leverage, be longer than the distance between two crossed bars. In the tie here disclosed, the completion from installing to finished form, is accomplished by substantially a half turn. By forming the bend in the loop at the angle indicated a wide flaring mouth

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is provided, as best shown in Fig. 2. In other words, the wire is first bent into a loop and then the loop is bent at an intermediate point whereby the portions of the loop on opposite sides of the bend lie, preferably, at an acute angle to each other. At any rate the angle of the bend should be such that the tie may easily be placed in the position of Fig. 2, without distortion which would be difficult due to the heavy wire used. It also takes care of any slight variations in the combined thickness of the crossed bars, as when the ribs or the recesses of the respective bars are in contact.

Obviously, the shape is capable of some modification, and I do not wish to be limited except as indicated in the appended claims.

I claim:

1. A tie for crossed reinforcing rods, consisting of a length of wire bent into a loop and the loop bent on itself whereby the portions of the loop on opposite sides of the intermediate bend lie at an acute angle to each other, one free end of the wire being sufficiently longer than the other free end to enable its being rebent substantially 180 degrees around one of the crossed bars, and to approximately meet the shorter free end, said bending of the long end constituting the sole necessary distortion of the parts to effect the holding action.

2. A tie for crossed reinforcing rods, consisting of a length of wire bent into a loop and the loop bent on itself, whereby the portions of the loop on opposite sides of the intermediate bend lie at an acute angle to each other, one free end of the wire being sufficiently longer than the other free end to enable its being rebent less than three-fourths of a turn around one of the crossed bars, said bending of the long end constituting the sole necessary distortion of the parts to effect the holding action.

3. A tie for crossed rods consisting of a length of wire of substantially smaller diameter than that of the rods, said length of wire being doubled on itself to provide a loop the legs of which are of uneven length, said loop being transversely bent into substantially V-shape, the long leg being rebent over a bar to substantially meet the end of the short leg, said rebending constituting the sole necessary distortion to complete the tying action, the wire being of sufficient stiffness to afford a rigid tie by less than three-fourths of a turn of the long leg over the adjacent rod.

In testimony whereof I have affixed my signature.

WILLIAM E. WHITE.