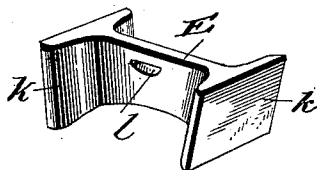
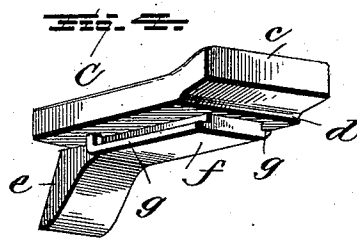
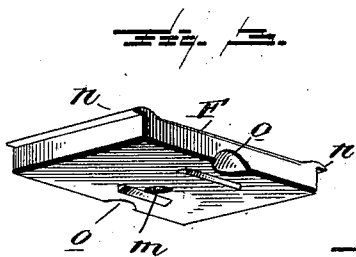
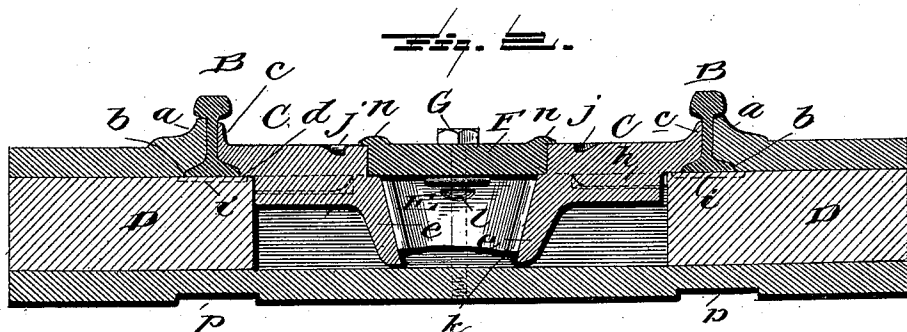
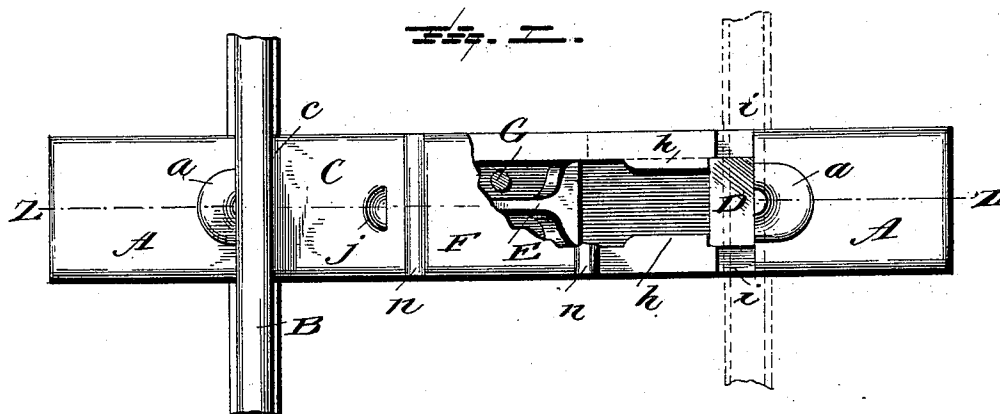


(No Model.)

G. W. STEVENSON.
METAL CROSS TIE.

No. 470,795.

Patented Mar. 15, 1892.



Witnesses
L. C. Mills
C. H. Bond

Inventor
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per Chas. C. Fowler,
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UNITED STATES PATENT OFFICE.

GEORGE W. STEVENSON, OF READING, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO SAMUEL M. STROHECKER, OF SAME PLACE.

METAL CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 470,795, dated March 15, 1892.

Application filed June 12, 1891. Serial No. 396,007. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STEVENSON, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Metal Cross-Ties; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to metal cross-ties for railways; and the object thereof is to improve the construction of the tie, whereby the wear upon the sides of the rail is compensated for and the consequent slack of the rails taken up, thereby securely and firmly holding the rails stationary upon the cross-ties, and thus rendering the ties more practical and serviceable.

The above objects are attained by the construction substantially as shown in the drawings, and hereinafter described and claimed.

Figure 1 is a top plan of one of my improved ties, with a portion broken away and one of the fastening-plates removed. Fig. 2 is a vertical longitudinal section through the tie on the line $z z$ of Fig. 1. Fig. 3 is a perspective view of the central securing-plate. Fig. 4 is a perspective view of one of the fastening-plates removed. Fig. 5 is a perspective view of the key-piece or wedge.

Like letters of reference indicate like parts throughout the several views in which they occur.

Referring now to the details of the drawings by letter, A designates the body portion of the tie, which is of the desired length, preferably rectangular in form, and hollow, as seen in Figs. 1 and 2.

The upper side of this tie is removed between the rails and at the outside of the rails is formed with the lugs a , adapted to bear against the outer face of the web of the rails, as seen in Fig. 2. These lugs may extend up sufficiently to bear upon the under side of the tread of the rail, if desired, as shown in Fig. 2. These flanges or lugs are undercut at their bases, as seen at b , and into these undercut

recesses the flange of the rail is designed to fit, as shown in Fig. 2.

B are the rails of known construction.

C are the fastening-plates, each formed the same, one being shown detached in Fig. 4. It is formed with a flange c , adapted to bear against the under side of the tread of the rail, as seen in Fig. 2, and with a shoulder d , as shown in Fig. 4, to bear against the lower inner edge of the flange of the rail. The fastening-plate is formed at its inner end with a depending lug e , the inner face of which is inclined from its upper end toward the center of the tie and upon the under face the plate is formed with the longitudinal rib f , the sides of which are formed with flanges g , which are designed to engage the flanges h on the inner faces of the side walls of the tie. (See Fig. 1.) Two of these fastening-plates are employed, one upon each end of the space between the rails and one bearing against each rail, as shown in Fig. 2.

D are blocks fitted in the ends of the hollow body of the tie and arranged with the wood having its grain at right angles to the length of the tie, the upper face of the blocks being slightly above the top edges of the side walls of the body at these points, so that the rails will be at first slightly raised above the said side walls, forming a sort of cushion for the rails. Transverse shallow grooves i are formed for the flanges of the rails as they settle into place.

The fastening-plates are cast or formed with depressions j for the purpose of aiding in the removal thereof in case they should become rusted in place.

E is the key or central wedge, formed preferably as shown in Fig. 5, the end walls thereof being oppositely inclined, as shown at k , and designed to engage the inclined faces of the lugs e of the fastening-plates, as seen in Fig. 2. The web of the wedge is provided with a depression l , to aid in its removal.

It should be noticed that the wedge E is somewhat less in height than the bearing-flanges of the fastening-plates C, against which the sides of the wedge come in contact. This construction leaves sufficient space be-

tween the bottom of the tie and the lower end of the wedge to enable said wedge to automatically descend by its own gravity to push outward the ends of the fastening-plates against the sides of the rails, and thus compensate for the wear thereon and take up the slack in the rails. The bolt which holds the central plate or cap F in place serves, together with the plate or cap, as a protection to the wedge from being tampered with by malicious persons.

In practice the fastening-plates are moved toward the center of the tie and the rails placed in position. Then the fastening-plates are pushed up against the rails and the key or wedge placed in position between the lugs *e* of the two fastening-plates, as seen in Fig. 2. Then the central plate F is placed in the space between the adjacent ends of the two fastening-plates and a bolt G passed through a hole *m* in the said plate and engaging a hole in the bottom of the body of the tie and the bolt screwed up, and the parts are thus held firmly in place. The central plate is provided with flanges *n* at its opposite edges, as seen in Figs. 1, 2, and 3, to cover the joints between itself and the fastening-plates and to exclude dust and dirt. The central plate is provided with depressions *o* for the reception of a crowbar or any other instrument to aid in its removal.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

When the tie is to be employed for bridge-work, I form it upon its under face with transverse grooves *p*, which are designed to fit over the stringers of the bridge to keep the tie from shifting out of place when once secured in position.

What I claim as new is—

1. In a railway cross-tie, the combination, with movable fastening-plates for the rails, of an automatically-gravitating wedge to act against the plates for the purpose of taking up the wear upon the sides of the rails, substantially as and for the purpose set forth.

2. In a railway cross-tie, the combination, with movable fastening-plates having inclined lugs or bearing-surfaces, of an automatically-

gravitating wedge, the sides thereof bearing against the lugs and acting to keep the plates against the sides of the rail as the latter wear, substantially as and for the purpose specified.

3. In a railway cross-tie, the combination of movable fastening-plates, an automatically-gravitating wedge acting to force said plates outward against the rails, and a covering-plate located between the fastening-plates and covering the space in which the wedge is located, substantially as and for the purpose specified.

4. The combination, with the hollow tie formed with lugs or flanges upon its inner walls, of fastening-plates having flanges to engage said flanges, lugs with inclined faces, and a central wedge, as set forth.

5. The combination, with the hollow tie having rail-engaging lugs and flanges upon its inner walls, of the removable fastening-plates having longitudinal flanges and a lug with inclined face, the central wedge inserted between the said lugs, a central covering, and a securing-bolt passed through the central plate and into the bottom wall of the tie, as set forth.

6. A railway-chair having at its ends lugs for engaging with the outer sides of the rails and flanges upon the inner walls, in combination with longitudinally-movable fastening-plates having flanges at their outer ends to bear against the inner sides of the rail and flanges to engage with the flanges of the tie, and an automatically-gravitating wedge, substantially as specified.

7. A railway-chair formed at one end with a rail-engaging lug, a lug at the other end having an inclined face and upon the under side formed with a longitudinal rib having side flanges, combined with a tie having flanges and rail-engaging lugs, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE W. STEVENSON.

Witnesses:

WM. H. COLE,
F. A. SCHOCK.