

1,060,373.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

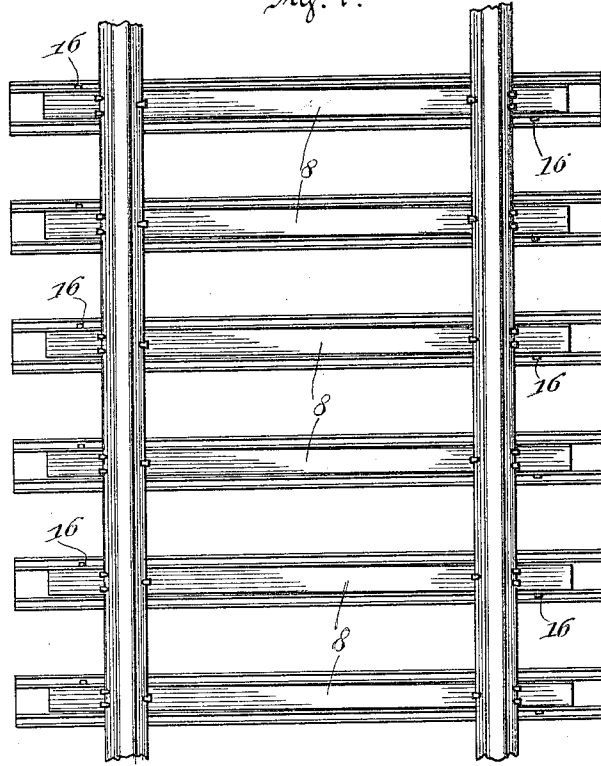
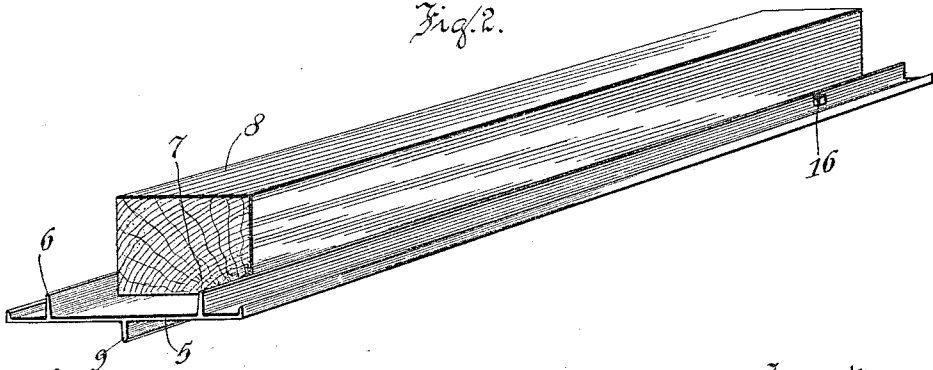


Fig. 2.



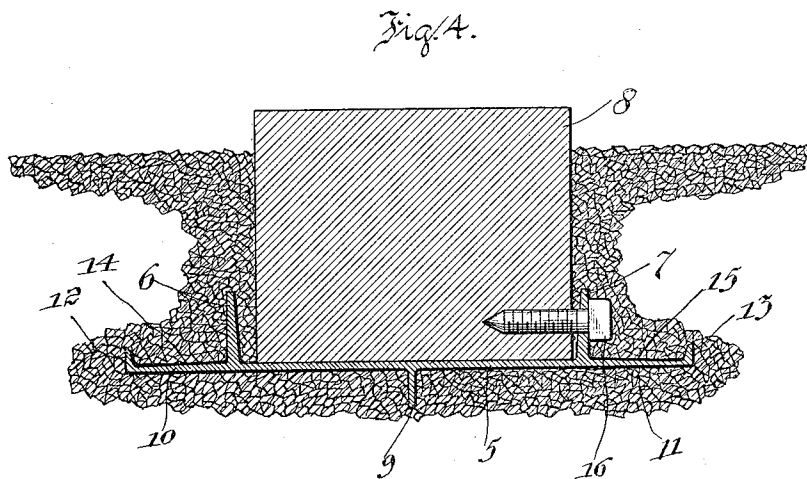
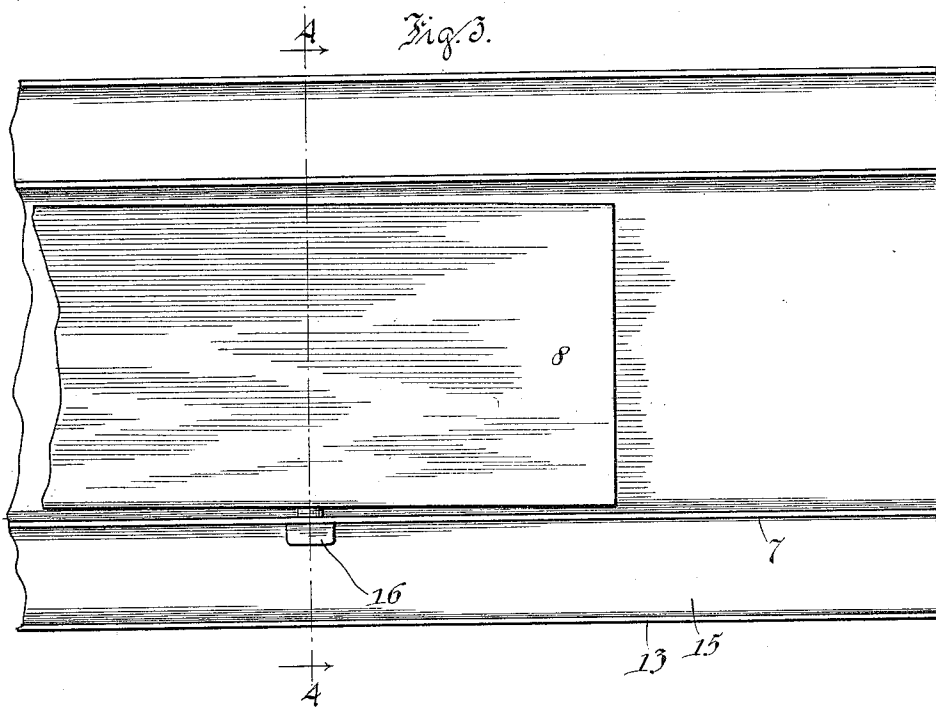
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ALFRED L. STEVENS, OF CHICAGO, ILLINOIS.

RAILROAD CROSS-TIE.

1,060,373.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed December 21, 1912. Serial No. 737,981.

To all whom it may concern:

Be it known that I, ALFRED L. STEVENS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad Cross-Ties, of which the following is a specification.

My invention relates to improvements in road structures for railways and has especial reference to a compound cross tie for support of traction rails.

One of the objects of my invention is to provide a relatively permanent sub-base for a cross tie of the usual type, having an extended base area, thereby to provide a large weight-bearing surface upon the overlain road bed.

Another object of my invention is to provide a relatively permanent sub-base of a cross tie, preferably of metal, to be entirely covered with the ballast of the roadways, thereby to protect it from the deleterious effects produced by changing atmospheric conditions.

Another object of my invention is to provide a sub-base, of the character to be hereinafter described, from which the wooden member of the compound tie may be conveniently removed and replaced without disturbing the seat of the sub-base or metal portion in the ballasted road-way.

Still another object of my invention is to design the metal sub-base so that it may possess all of the described beneficial features and at the same time be of such form and configuration that it may be rolled in continuously long lengths, in the usual manner and by means of relatively simple rolls, and may then be cut off into suitable lengths to provide an integral structure of advantageous character, free from the rattling which is apt to occur in devices where several parts are bolted or riveted together, and being less expensive than such riveted constructions.

Other and further objects of my invention will become readily apparent to persons skilled in the art from a consideration of the description when taken in conjunction with the drawings, wherein—

Figure 1 shows a plan view of a section

of railway track built with my improved cross tie; Fig. 2 is a perspective view of the compound tie; Fig. 3 is an enlarged plan view showing one end of the tie; and Fig. 4 shows a sectional view of the tie and part of the road bed.

In all the views the same reference characters indicate similar parts.

The sub-base consists of a plate 5, preferably of uniform sectional area having vertically rising flanges or ribs 6 and 7 between which to contain the wooden tie 8. A rib 9 extends downwardly from the under surface of the plate 5 and is located, preferably, in the transverse center of the plate. This flange or rib gives longitudinal strength to the sub-base and also prevents a shifting thereof longitudinally of the road bed. Extending laterally from the ribs 6 and 7 are tapered base extensions 10 and 11 respectively, which terminate in upwardly extending strengthening beads or small ribs 12 and 13 respectively. Gutters or water-conducting troughs, such as shown at 14 and 15, are formed between the beads 12 and the rib 6 on one side and the bead 13 and the rib 7 on the other side. These gutters serve as means for conducting the water from around the base of the wood tie through the superposed ballast material, the water passing off at the lowest end of the sub-base beyond the lower end of the wood tie. The draining of water away from the tie in this manner serves to keep the base portion of the road-way relatively dry, and prevents the softening of the roadway and sinking of the tie into the road-way by the superposed weight of the train, and the ribs 12 and 13 additionally serve to strengthen and prevent damage to the tapering extensions 10 and 11 from tools used in attaching the wood tie in position between flanges 6 and 7, as hereafter described.

The wood portion of the tie 8 may be made of a single piece or a number of pieces, as desired, and is intended to be received immediately above and to lie upon the plate 5, between the flanges 6 and 7. It may be held in place by any suitable means such as a lag screw 16 which passes through the rib 7 at one end and enters the tie, another screw

being provided in rib 6 at the opposite end of the device. The lag screw draws the wood tie portion near its rib at one end, and the lag screw at the opposite end will cause the opposite end of the tie to be drawn nearest the opposite rib, thereby causing the wood tie to lie in a diagonal position with respect to the ribs 6 and 7. By this means a space is left on both sides of the tie for its lateral expansion due to water or other causes. It will be noted that this diagonal arrangement also makes a given base adaptable to support ties of great variety of widths and shape, since the oppositely located screws will always be able to engage opposite ends of the tie irrespective of width. Thus unfinished ties with curved bark-covered sides may be used with equal effectiveness and reduced expense, or any of the cheaper and therefore more desired ties which are not uniform in cross section may be used since the two sides of the tie do not touch the flanges except where the screws draw them tight.

As a further advantage, my invention contemplates the making of the interior surfaces of the flanges 6 and 7 incline outwardly from bottom to top thereof so that not only is the ballast more easily able to fall down in between the wood tie and the flanges 6 and 7, the diagonal arrangement of the wood tie of course leaving a space between it and the flanges, thereby more effectively embedding said wood tie in the ballast, but, by said tapering of the flanges 6 and 7, the swelling of the tie readily forces out as much of the ballast as may be required to accommodate the swelling, so that warping of the tie shall not result as it would but for this arrangement of the parts.

The sub-base 5 is placed in the road-way and tamped up in proper relation with the rails, after which it is not disturbed. When it is desirable to remove the wooden tie from its position with reference to the metal portion thereof, it is only necessary to remove a small part of the ballast around the tie and take out the lag screws, which leaves the wood portion 8 free for removal from the metal portion. Then a substitute wood portion may be placed in the position formerly occupied by the one removed and the small amount of ballast necessary to be taken out is then replaced. If the spikes in the upper surface of the wooden portion become loose it is only necessary to shift the wood portion longitudinally a slight degree in order that new holes may be made by the spikes, and thus a wood tie may be made to last much longer when used in connection with my metal sub-base than when used alone.

If desired the metal sub-base of my com-

pound tie may be first treated with asphalt or other like preserving material before being placed in the road-way in order that its life may be prolonged.

By the use of my compound tie, I provide a larger sub-base surface for support of the weight of the train and I have all of the beneficial effects of the wood tie. The use of my compound tie also decreases the required labor and expense for the up keep of the road bed.

While I have herein shown a single embodiment of my invention for the purpose of clear disclosure, it is evident that changes may be made therein within the scope of the appended claims. For instance other fastening means than the lag screws may be employed for holding the wood tie and base together, or such fastening may be entirely dispensed with, without departing from my invention.

What I claim is:

1. A cross tie comprising a base plate having intermediate vertically and longitudinally extending ribs to provide a seat therebetween for a wooden tie, base extensions tapering from said longitudinally extending ribs to their outer edges, and strengthening ribs extending angularly upward from the outer narrower edge of each said base extension, for purposes described.

2. A cross tie comprising a base plate having intermediate vertically and longitudinally extending ribs to provide a seat therebetween for a wooden tie, outwardly extending continuous base portions from each rib, and fastening means for said wooden tie comprising a tie-engaging member carried by one rib near one end thereof and another tie-engaging member carried by the opposite rib near the opposite end thereof, said ribs being spaced apart a distance somewhat greater than the width of the tie to be inserted therebetween, for support of the tie in a diagonal position to leave for the rib-engaged tie a space for swelling toward both ribs.

3. A device of the character described for use with a railroad tie, comprising a base plate having parallel vertically and longitudinally extending ribs to provide therebetween a seat for a tie, said ribs having straight continuous upper edges, said ribs being spaced apart a distance greater than the width of the railroad tie to be seated therebetween and each said rib having its interior surface inclining outwardly from its lower to its upper edge, for purposes described.

4. A device of the character described for use with a railroad tie, comprising a base plate having parallel vertically and longitudinally extending ribs to provide there-

between a seat for a tie, said ribs having
straight continuous upper edges, said ribs
being spaced apart a distance greater than
the width of the railroad tie to be seated
5 therebetween and each said rib having its
interior surface inclining outwardly from
its lower to its upper edge, for purposes de-
scribed, and tie-engaging means carried by
one of said ribs at one end thereof and by
the other said rib at the opposite end there- 10
of, for purposes described.
In testimony whereof I hereunto set my
hand in the presence of two witnesses.

ALFRED L. STEVENS.

In the presence of—
MARY F. ALLEN,
W. LINN ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
