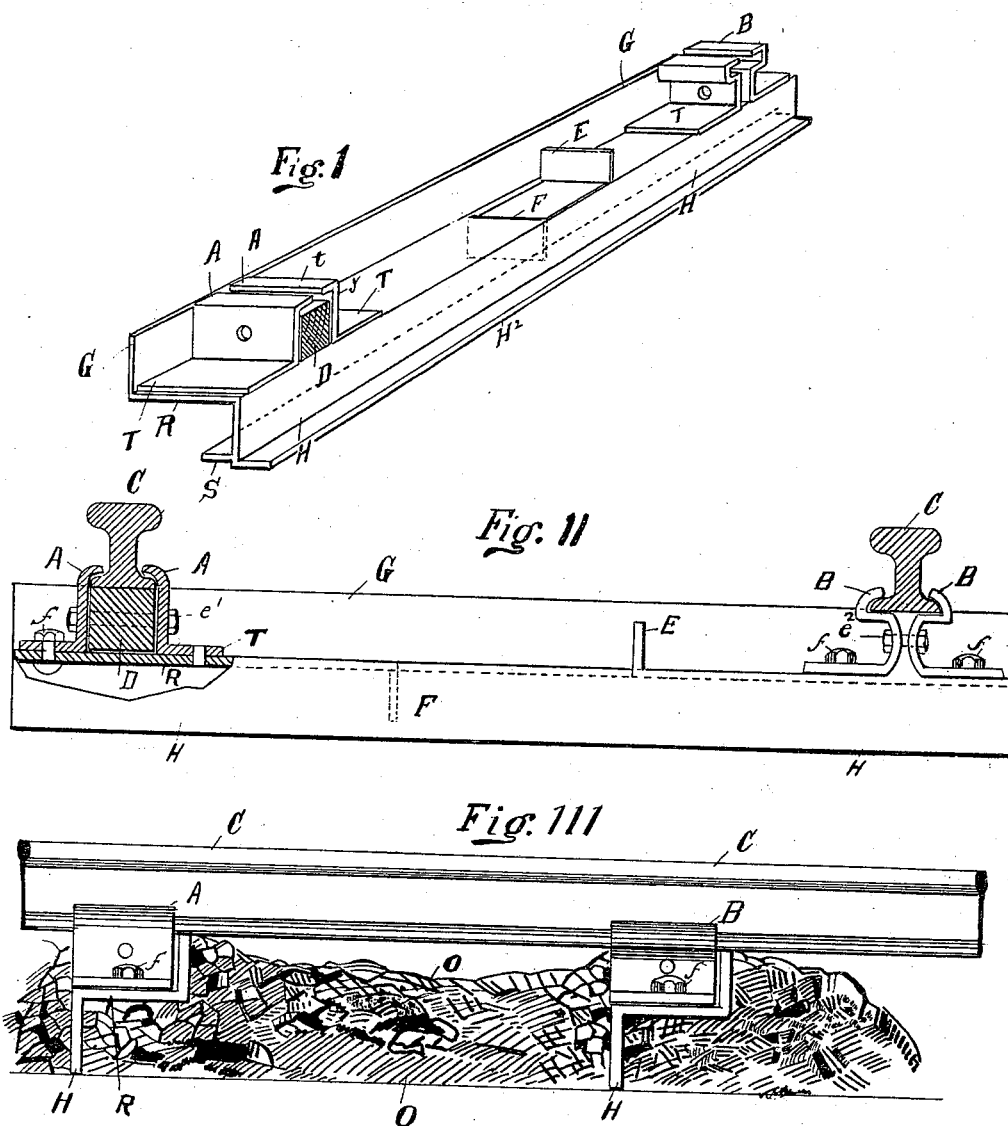


(No Model.)

A. W. STRAUB.
METALLIC RAILWAY TIE.

No. 492,121.

Patented Feb. 21, 1893.



WITNESSES:

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UNITED STATES PATENT OFFICE.

AMBROSE W. STRAUB, OF PHILADELPHIA, PENNSYLVANIA.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 492,121, dated February 21, 1893.

Application filed September 22, 1891. Serial No. 406,471. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE W. STRAUB, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railway Ties, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to metallic railway ties and consists of certain improvements, which are fully set forth in the following specification and the accompanying drawings which form part thereof.

The object of my invention is to provide a light but strong and durable tie and one that can be economically and readily manufactured and, therefore, serve an important purpose in railway construction. To accomplish this object I employ the structural principle of the angle iron of commerce, and like the said iron the body of my tie can be rolled and manufactured in a rolling mill, provision being made by heavy rolls of a suitable shape to give the desired form to the tie. I could also bend the flanges from a sheet of plate metal. I thus gain great strength and stiffness and the amount of metal required in each individual tie is reduced to a minimum. The cost is, therefore, also greatly reduced, as will be readily understood. To guard against the possibility of displacement in any direction I extend one angle, flange or anchor upward from the body of the tie; and project one flange or anchor downward from the body of the tie. These flanges are firmly embedded in the ballast. I can also provide my depending flange, for the purpose of making the tie more secure in the ballast, with lateral, longitudinal horizontal strips. They can be either bent from and made integral with the depending flange, or riveted thereto.

In order to anticipate and counteract any tendency to lateral movement or displacement of the tie, I mortise the center of the tie bed plate and bend a portion of the bed plate metal upward and a portion downward. I thus get two transverse flanges, each of which is firmly implanted in the ballast. While I show in the drawings the tie as mortised in the center and project one part of the metal liberated upward and one part down-

ward, I desire it understood I do not limit myself to this specific construction. I could also bolt or rivet a transverse angle plate on the bed plate of the tie as a full equivalent. I, however, prefer the mortise in practice. The rails are held in position on the tie by transverse supports to which they are secured by rivets, bolts or any effectual means. These supports are in turn secured to the bed plate of the tie.

In the drawings Figure I is a perspective view of my improved metallic tie in which all the features are clearly shown. Fig. II is a transverse view on the track of a railway having my improved tie. Two forms of supports are shown for the rails. Form A A in section; form B B in elevation. Fig. III is a side elevation of a rail supported by my improved tie, in which the manner of embedding the tie in the ballast is clearly shown.

R is the bed plate of my improved tie.

G is the upward extending flange or anchor. H is the depending anchor or flange. These flanges are firmly implanted in the ballast. This downward extending flange is an important feature of my invention, for by its use I not only obtain a much more rigid tie and, therefore, more substantial road bed, but I also reduce the cost by using a minimum of metal.

To still further increase the rigidity of the tie and its firmness in the ballast, I provide, for the depending flange, H, a flat horizontal extending angle plate, S, Fig. I. I do not show this angle plate in any of the other drawings as it is not necessary.

E is the upward extending transverse flange and F is the downward extending transverse flange. They might be termed mates and their function is to prevent lateral displacement.

In Fig. I I show a perspective view of the rail clamps, *i, e*, the means I employ for holding the rails to the tie. A A shows two transverse clamping pieces formed from heavy sheet metal and consist of a right angular bent metallic piece with the upper end bent over. To clamp and hold the rail, a hole is punched in the plates.

D, Figs. I and II, is a section of a block of wood incased by the clamps, A. A. The rail, C C, Fig. II, rests on this wood, and the clamps,

A A., engage the lower flanges of the rail and hold it firmly in place.

e', Fig. II, is a bolt which passes through the angle plates and the wood and holds them firmly together.

f, Fig. II, is a bolt which passes through the transverse angular rail clamps A. A. and B B and holds them firmly to the bed plate R or body of the tie.

In Fig. II at the angular rail clamps A. A. the depending flange H H is shown as broken in order to clearly show the method of securing the said clamps to the body R.

B B, Fig. II, shows a different method of supporting the rails. In this construction I dispense with the wooden rail supports and instead provide clamps of a shape suitable for both clamping and supporting the rails. The shape of these clamps is shown by B B Fig. II and a modified shape is at B Fig. I. In Fig. II these rail clamping supports B B are slightly curved, by this construction and the employment of heavy sheet steel in their manufacture, I obtain a slight spring which on the passage of a train will relieve the same from a certain amount of jar and to some extent prolong the life of the rolling stock and be a source of comfort to passengers.

O O, Fig. III, shows the ballast and the manner in which the ties are firmly held therein.

An important advantage in extending one longitudinal flange upward and one downward and making the tie Z shaped places the major portion of the tie deep under the ballast where, in case a train should be derailed it would receive the least injury. By making my tie of the above described shape I gain the greatest possible amount of anchorage. I keep the body of the ballast at all times intact, both above and below the body of the tie. This possesses a decided advantage over ties made heretofore having double upward extending and downward extending flanges. Those ties possess the disadvantage of boxing a portion of the ballast, above and below the bed plate. The tendency of my tie to rock or crawl in the ballast is reduced to a minimum and is greatly relieved from this weakness of the double flanged ties. On heavy grades and curves the frictional anchorage of my tie is much superior to the old doubled flanged ties. The S shaped rail supports clamp the rail firmly and when rails are joined at the end of these supports, fish plates can be dispensed with, which is great economy.

I do not limit myself to the mere details of construction, as they could be modified in various ways without departing from the spirit of my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A metallic railway tie having a bed

plate, a longitudinal flange turned up at one side of said bed plate, and a similar flange turned down at the other side only of said bed plate, substantially as described.

2. A metallic railway tie having a bed plate, a longitudinal flange turned up at one side of said bed plate, a similar flange turned down at the other side only of said bed plate, and a transverse support for the rails secured to said tie, substantially as described.

3. A metallic railway tie provided with a bed plate, a longitudinal flange turned up at one side of said bed plate, a similar flange turned down at the opposite side only of said bed plate, in combination with an elastic transverse support for the rails, bolts or rivets for securing said rail support to the bed plate and bolts for holding said flexible rail supports firmly together and in engagement with said rail.

4. In a metallic railway tie provided with one upward and one downward extending longitudinal flange only, in combination with two (2) elastic S shaped supports for the rails, with a bolt to hold the supports firmly together and whereby the same means which support the rails also clamp and hold the said rails against movement in any direction.

5. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor secured to the one side only of said bed plate, a downward extending longitudinal flange or anchor secured to the opposite side of said bed plate, and an upward extending transverse flange or anchor secured to said bed plate, whereby lateral movement is rendered less liable and the entire tie is held firmly in the ballast.

6. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor, secured to said bed plate at the one side thereof only, a downward extending longitudinal flange or anchor secured to said bed plate at the opposite side thereof, an upward extending transverse flange or anchor secured to said bed plate and a downward extending transverse flange or anchor secured to said bed plate, whereby lateral movement is rendered less liable and the entire tie is held firmly in the ballast.

7. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor, a downward extending longitudinal flange or anchor, and a horizontal extending longitudinal plate secured to said downward extending flange, as and for the purpose specified.

In testimony whereof I affix my signature in the presence of two witnesses.

AMBROSE W. STRAUB.

Witnesses:

MALCOLM G. CAMPBELL,
HENRY COCHRAN, Jr.