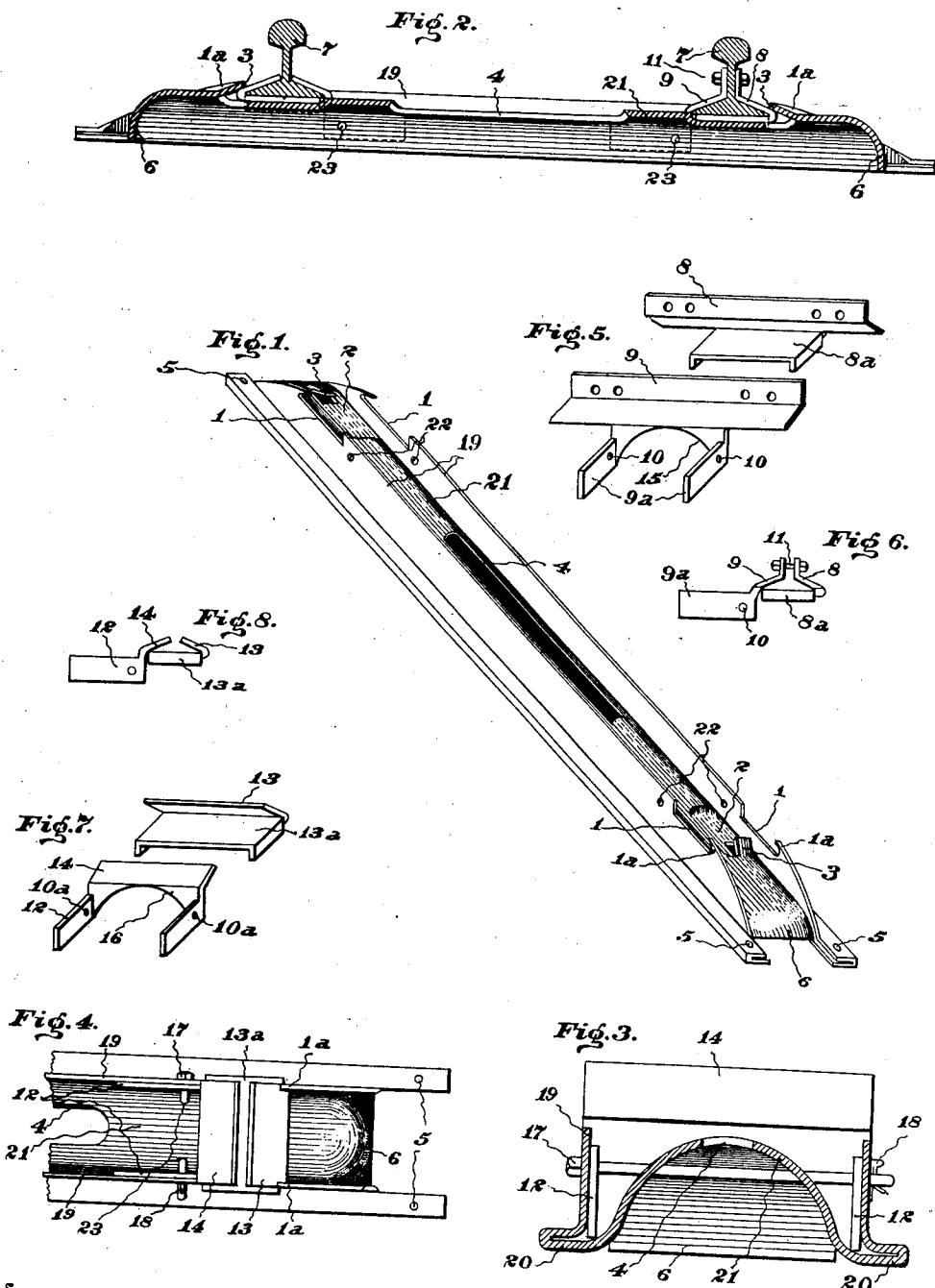


No. 826,398.

PATENTED JULY 17, 1906.

H. L. YOUNG.
RAILWAY METALLIC TIE AND CLAMP.
APPLICATION FILED APR. 16, 1906.



Witnesses.

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HARRY L. YOUNG, OF PUEBLO, COLORADO.

RAILWAY METALLIC TIE AND CLAMP.

No. 826,398.

Specification of Letters Patent.

Patented July 17, 1906.

Application filed April 16, 1906. Serial No. 311,978.

To all whom it may concern:

Be it known that I, HARRY L. YOUNG, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented new and useful Improvements in Railway Metallic Ties and Clamps, of which the following is a specification.

My invention relates to improvements in pressed-steel ties for railways and means for securing the rails thereto.

The principal objects of the invention are to supply a metal railway-tie at less expense and having greater life than a tie made from other material; to so form and construct the tie that the spreading of the rails will be prevented and the wrecking of trains from such cause be avoided; to so form and construct the tie that it will offer a maximum resistance to forces tending to displace it longitudinally, laterally, and by rocking to grind it into the road-ballast; to supply means for attaching the rails to the tie in a rapid, secure, and efficient manner, and to dispense with the use of threaded bolts in mounting the rails.

These and other objects I obtain by, and the invention consists in, the mechanism and construction hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved tie with all fastenings removed. Fig. 2 is a central longitudinal section through the tie, showing the rails mounted and fastened thereon. Fig. 3 is a central transverse section, on an enlarged scale, through the tie, showing one member of the rail-clamp in elevation. Fig. 4 is a top plan view of a portion of the tie, showing the rail-clamps in position for holding a rail. Fig. 5 is an enlarged detached perspective view of fish-plate clamps for holding the rail to the tie, employed to form a joint when two rails abut over the tie. Fig. 6 is an end elevation of the same in their relative operative positions. Fig. 7 is a detached perspective view of the rail-clamps used at points along the rails other than at the joints, and Fig. 8 is an end elevation of the same similar to Fig. 6.

Referring to the drawings, in which similar reference-numerals designate corresponding parts throughout the several figures, the tie is shown as formed from sheet metal, preferably steel, of the proper thickness for the traffic of the road for which it is to be used, with a central portion 21, arch-shaped in

cross-section and extending longitudinally of the tie. Upon each side of this central portion 21 the metal is bent outwardly and back upon itself to form base-flanges 20; and then upwardly to form upstanding side flanges 19. Toward the ends of the tie the central arch-shaped portion 21 terminates in a downturned end 6, thus forming an inverted closed-end channel flanked by base-flanges and provided with a tamping-opening 4. Near each end of the tie the arch-shaped portion is slightly flattened, as shown at 2, and in alinement therewith the side flanges 19 are cut out at 1 to receive the rail-clamps. At one side of flattened portion 2 the metal is cut and bent up to form a lug 3, and this lug, together with undercut points 1^a of the side flanges, constitutes an abutment for one side of the rail-clamps.

My combined rail-clamp and fish-plate is shown in Figs. 5 and 6 and the rail-clamp without the fish-plate feature in Figs. 7 and 8. Referring first to Figs. 5 and 6, it will be seen that the clamp is composed of two members, one having a fish-plate 8, and a base portion 8^a, adapted to form a seat for the abutting rail ends and provided with downwardly-bent flanges adapted to bridge and take over the side flanges 19 of the tie. The cooperating clamping member has a fish-plate 9 and a downwardly-extending portion cut out at 15 to conform to the shape of arch-shaped portion 21 of the tie and having lugs 9^a, adapted to rest in the channel formed between portion 21 and side flanges 19 of the tie, where they are secured by bolt 17, inserted through holes 10 and 22. When assembled, the fish-plates are secured to abutting rail ends by bolts 11. Plate 8 rests against abutments 1^a and 3, and bolt 17 is passed through holes 10 and 22 and through holes 23 in arch 21 and secured by tapered cotter-pin 18. This forms a combined rail-joint and clamp.

When a rail is to be attached to a tie, I preferably employ the clamps shown in Figs. 7 and 8, which are similar to those shown in Figs. 6 and 7, but without the fish-plates. Here the parts 13 and 14 engage the rail-base, and parts 13^a, 12, 10^a, and 16 correspond, respectively, to parts 8^a, 9^a, 10, and 15. The assembling of these parts is shown in Figs. 3 and 4. Base-flanges 20 of the tie are preferably provided with suitable perforations 5 to receive spikes or bolts for securing the tie to bridge structures.

The form of my improved tie is not only

adapted to obtain the greatest strength possible with the sheet metal employed, but affords a means by which the proper tamping under and about the tie causes the tie to adhere rigidly to the road-bed. By tamping through opening 4 the road-bed or ballast is packed firmly under the arch and against its ends 6 and both lateral and longitudinal displacement of the tie prevented. Base-flanges 20 constitute a firm base to prevent rocking of the tie and consequent grinding into the road-bed, and these form a base and brace which, together with the rail-clamps and mounting, firmly hold the upstanding sides 19.

The rail-clamps not only form an efficient support for the rails, but securely hold them against "running" and effects of expansion. Only one bolt is needed for securing the clamp to the tie, and as the tapered cotter-pin is employed the objectionable feature of threaded bolts is practically eliminated. Moreover, by my construction when employed in cities old rails may be removed and new rails supplied in paved streets without cutting any pavement from the outside of either rail, it being only necessary to remove the paving or stone toothed between the rails for a few inches in from the rail, whereupon the clamp-bolt 17 may be removed and the rail pulled inward. The clamps are then applied to the new rail, and it is placed in position upon the tie, when bolt 17 is reapplied and the paving or stone toothed replaced.

By employing the phrase "arch-shaped in cross-section" with reference to the central portion of the tie I do not intend to limit myself to the exact rounded shape shown, but wish to include any arch outline which might be held the equivalent thereof.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A railway-rail tie having a central portion arch-shaped in cross-section, an upstanding side flange at each side of said central portion, and base-flanges extending laterally from the junction of said central portion and said upstanding side flanges, substantially as described.

2. A sheet-metal railway-rail tie having a central portion formed to provide an inverted channel, the metal upon each side of said central portion being bent outwardly and back upon itself to form base-flanges and upwardly to provide upstanding side flanges, substantially as described.

3. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section to provide an inverted channel closed at the ends, the metal upon each side of said central portion being bent outwardly and back upon itself to form base-flanges and upwardly to provide upstanding side flanges, substantially as described.

4. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section to provide an inverted channel closed at the ends and having one or more tamping-openings, the metal upon each side of said central portion being bent outwardly and back upon itself to form base-flanges and upwardly to provide upstanding side flanges, substantially as described.

5. A combined railway metallic tie and rail-clamp comprising a tie formed from sheet metal with a central portion arch-shaped in cross-section and an upstanding side flange at each side of said central portion, a clamp member formed to seat and engage a rail-base and having downturned ends to bridge and straddle said upstanding side flanges, and a cooperating clamp member arched to conform to said central portion and formed with means to engage the rail-base and lugs extended to rest in the channels between said central portion and upstanding flanges for attachment to the latter, substantially as described.

6. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section and an upstanding side flange at each side of said central portion, a flattened rail-seat upon said central portion, and a lug cut and bent up from said central portion adjacent said flattened rail-seat to constitute a lateral abutment for a rail, substantially as described.

7. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section and an upstanding side flange at each side of said central portion, a flattened rail-seat upon said central portion, a lug cut and bent up from said central portion adjacent said flattened rail-seat to constitute a lateral abutment for a rail, and means for clamping a rail against said abutment, substantially as described.

8. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section and an upstanding side flange at each side of said central portion, a clamping member formed with a part to engage said tie and constitute a rail-seat and a part to engage a rail-base, a cooperating clamping member formed to engage the rail-base and having lugs for attachment to said tie, a bolt securing said lugs to said tie upstanding side flanges, and a tapered cotter-pin for securing said bolt and bearing against one of said side flanges, substantially as described.

9. A sheet-metal railway-rail tie formed with a central portion arch-shaped in cross-section and an upstanding side flange at each side of said central portion, a rail-clamping member formed with a part to engage said tie and constitute a rail-seat and a fish-plate, a cooperating clamping member formed with a fish-plate and means for attachment to said tie, and means to attach said fish-plates to abutting rail ends and to secure said clamp-

ing members upon said tie, substantially as described.

10. A sheet-metal railway-rail tie having a central portion formed to provide an inverted
5 channel, an upstanding side flange at each side of said central portion, a lug cut and bent up from said central portion adjacent an end thereof, said side flanges having notches each terminating at one end in a lug alined with
10 said central-portion lug, and rail-clamping

means engaging said lugs, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY L. YOUNG.

Witnesses:

S. F. CRAWFORD,
JAS. F. McMAHON.