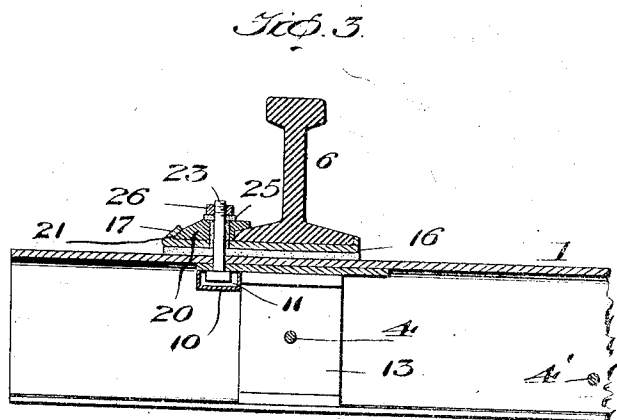
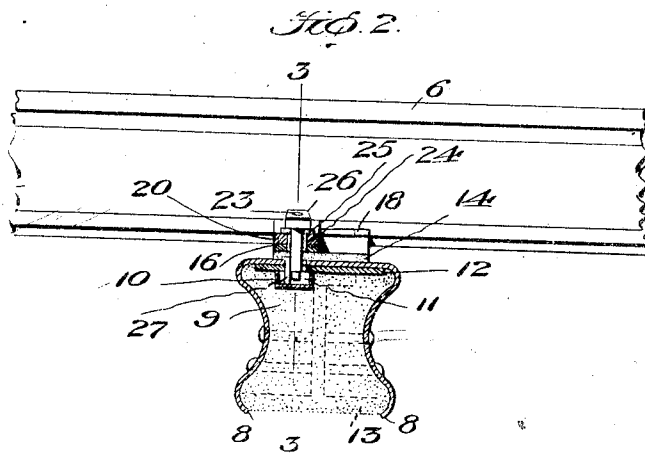
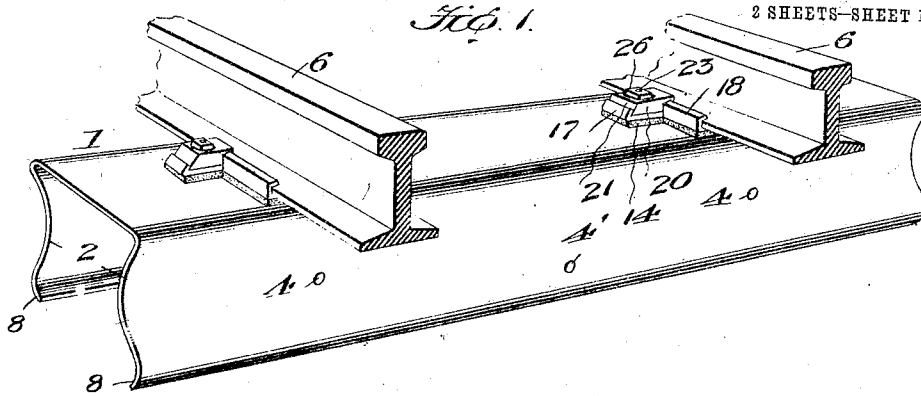


J. A. HYLE & W. R. CARMODY.
RAILWAY TIE AND BAIL FASTENING.
APPLICATION FILED OCT. 14, 1912.

1,058,434.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.



WITNESSES

May M. Payer

INVENTORS

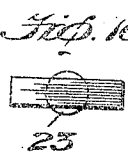
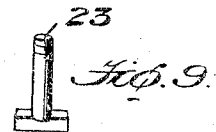
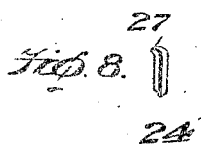
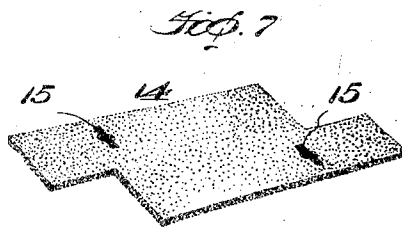
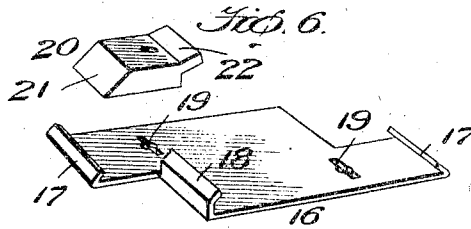
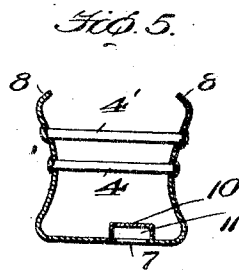
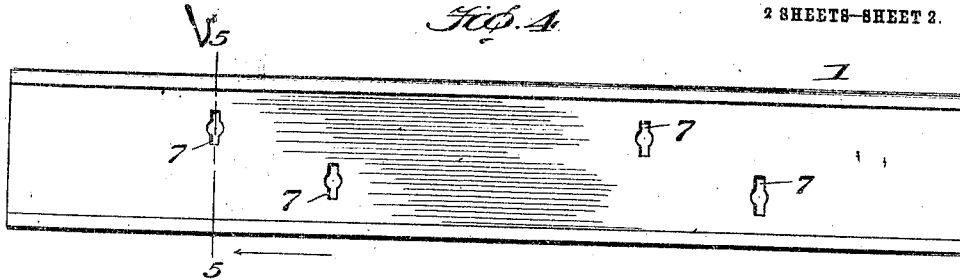
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By *James L. Shidmore*
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2 SHEETS-SHEET 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CHICAGO STEEL RAILWAY TIE COMPANY, OF PHOENIX, ARIZONA, A CORPORATION
OF ARIZONA.

RAILWAY-TIE AND RAIL-FASTENING.

1,058,434.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed October 14, 1912. Serial No. 725,760

To all whom it may concern:

Be it known that we, JACOB A. HYLE and WALTER R. CARMODY, citizens of the United States, and both residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Ties and Rail-Fastenings, of which the following is a specification.

Our invention relates to a metallic railway tie and means for securely fastening the tie to the track rails of steam and electric railways.

The main object of our invention is to provide an improved railway tie in connection with simple, strong, economical, durable and efficient means for firmly securing the track rails to the said improved metallic tie.

Another object of the invention is to furnish novel securing means for firmly fastening the track rails to a metallic railway tie, a means for the insulation of the track rails from the metallic tie.

Another object is to provide means located within the metallic tie for adding additional strength and serving as a reinforcement to the tie at a point beneath the base of the track rails.

A further object of the invention is to provide means secured between the base of the track rails and the upper surface of the metallic tie which serves as an insulating and resilient cushion, and also to deaden the rumbling and rattling noise common on railways.

The foregoing and such other objects as may occur from the ensuing description, are accomplished by the means hereinafter more fully described, and by the combination, arrangement and location of the parts illustrated in the accompanying drawings and particularly set forth in the claims appended hereto.

Reference now being had to the accompanying drawings which form a part of this specification and in which similar numerals of reference indicate like parts, it will be seen that: Figure 1, is a perspective view of the improved railway tie showing a portion of each track rail, and the means for securing said tie to the track rails embodying our invention. Fig. 2, is a transverse sectional view through the railway tie showing the track rail securing means and a portion of the track rail in side elevation. Fig.

3, is a longitudinal sectional view through a portion of the tie and the rail, securing means, showing the track rail in cross-section, taken on the line 3—3, Fig. 2. Fig. 4, is a top plan view of the railway tie. Fig. 5, is an inverted transverse sectional view of the railway tie, taken on the line 5—5, Fig. 4. Fig. 6, is a perspective view of the track rail securing plate and clip. Fig. 7, is a perspective view of the insulating plate, pad or cushion removed from the tie. Fig. 8, shows in perspective detail views of a locking pin and an insulating sleeve and washer. Fig. 9, is a perspective view of one of the track rail securing bolts, and Fig. 10, is a plan view of the securing bolt shown in Fig. 9.

In carrying out our invention we provide an improved railway tie 1, which may be formed in any desirable manner, and made of any suitable metal capable of attaining the objects sought to be obtained. The metal shell constituting the railway tie proper is of the same dimensions throughout its length, the top flat portion and its base portion being of the same width, and the side portions being bent inward thus making it narrower at its central portion 2, where it is provided with rivet bolts 4, which pass through the tie at a point beneath each of the track rails 6, said bolts serving to strengthen the tie and prevent the spreading outward of the same. About midway of the length of the tie and near the base portion thereof is provided another rivet bolt 4' for the purpose of adding strength thereto, as shown in Figs. 1, 2, and 5. The upper face of the tie is provided with a series of openings 7 adapted to receive the track rail securing bolts hereinafter described, and the lower side portions of the tie are rounded and slightly bent inward at 8. The tie is filled in any suitable or desirable manner with concrete material 9 thereby adding weight and strength and forming a solid and rigid interior for the same. Before filling the tie with the concrete material it is inverted and a cup-shaped piece of metal or other suitable material 10 is placed over each of the openings 7, (see Fig. 5) the tie is then properly filled with the concrete material by which the cup-shaped pieces of material are permanently held in position beneath each opening forming a part of the tie, and said cup-

shaped pieces also form a chamber 11 beneath each opening adapted to receive the headed portion of each rail securing bolt, as clearly shown in Figs. 2 and 3.

5 Inside of the tie and against the upper inner surface thereof at a point beneath the base of each track rail is placed a metal plate 12 provided with openings in line with the openings on the upper surface of the tie through which the securing bolts are adapted to pass, said plate serving to reinforce the upper portion of the tie at that point by adding more body to the tie and providing a more secure fastening for the bolt head.

15 As shown in Fig. 3, an I-beam 13 is inserted within the tie at a point beneath each track rail, thus adding great strength to the tie at that point, said I-beams being secured in place by the rivet bolts 4, and serving to prevent the tie from crushing downward should the concrete become disintegrated. If desired, the well known channel bar may be used in place of the I-beam.

25 On the upper surface of the tie beneath each track rail is placed an insulating plate or pad 14, made of a number of thin pieces of insulating paper, thus constituting an insulation and forming a resilient plate or cushion and preventing the rumbling noise common to railways, said plate or pad being provided with openings 15 through the same. On top of and fitting directly upon the said plate or pads 14, is a metal plate 16, provided at each end thereof with an upward and inwardly bent portion 17, and at one end having an upward and overhanging portion 18 adapted to clamp the upper surface of the base of the track rail, and having openings 19 therethrough in line with the openings in the upper portion of the tie. On top of this plate 16 at each end thereof, and over the openings therein is placed a rail fastening clip 20, one end of the clip being beveled at 21 and resting beneath the inwardly bent portion 17 of the plate thus preventing both the outward movement and the turning of the clip, the other end of the clip being provided with an upward overhanging portion 22 adapted to rest in contact with the upper surface of the base of the track rail, and said clip is provided with an opening therethrough to receive the securing bolt.

35 The securing bolts 23, clearly shown in Figs. 9 and 10, are screw-threaded at one end, the other end having a rectangular shaped head, the body portion of the bolt being of greater diameter than the width of the head portion. A sleeve 24 of insulating fiber is passed through the opening in the clip and metal plate 16, the lower portion of the sleeve resting in contact with the insulating pad or plate 14, and on the upper portion of said sleeve is placed an insulating fiber washer 25, and a securing nut 26 is fastened

to the upper screw-threaded end of the bolt above the washer. The insulating sleeve surrounds the bolt and prevents the latter from coming in contact with the metal clip and the insulating washer beneath the securing nut 26 prevents contact of the nut with the clip, thus forming in connection with the insulating plate 14, a thorough and complete insulation between the tie and the track rails, and preventing interference with the operation of electric signals such as are now used on railways.

As shown in Figs. 2 and 3, the openings in the upper surface of the tie, the metal plate within the tie and the insulating plate and metal plate on top of the tie are in alignment with each other, and said openings are of such shape or contour as to permit the bolt to pass head downward therethrough the head resting within the chamber 11 below the metal plate inside the tie, the bolt is then turned partly around so that the head will rest at right angles or crosswise, and a locking key or wedge 27 is inserted in one end of each opening alongside of the bolt, said key resting within said chamber 11 and in contact with the head of the bolt to prevent the bolt from turning into alignment with the said openings and working outward, hence said bolt cannot be turned or taken out until the locking pin is first removed from the opening.

It will be readily perceived that by bending the sides of the tie inward thus making it narrower at its central portion it will lessen the amount of concrete required to fill it, making the tie lighter in weight and at the same time furnish great strength, and by bending the tie slightly inward at its base portion the concrete filling is prevented from coming out. The ties thus constructed being wide at the top and bottom and narrower at the center permits the ballast to be wedged in between the ties and prevents them from moving up and down during the movement of rolling stock over them as is common when wooden ties are used.

It will be understood that the metal rail securing plate 16, is provided on one end only with an upward and overhanging portion 18, adapted to clamp the upper surface of the base of the rail alternately on the outside of the rail when placed on one tie and then on the inside of the rail when placed on the next tie, the plate being reversed end for end when placed on each tie, and said overhanging portion resting in close contact with and over the base portion of the rail prevents the rail from spreading or getting out of alignment, while the inwardly bent up portion 17 at each end of the plate not only prevents the clip from spreading or turning but serves to receive the strain of a side motion of the rail and relieves the securing bolt from taking all of

the strain, and prevents the bolt from being bent away from the rail when subjected to unusual and heavy strains.

It is obvious that slight alterations may be resorted to in the details of the construction hereinbefore set forth without departing from the spirit of our invention.

Having thus described our invention, what we desire to claim and secure by Letters Patent is:—

1. A metallic railway tie having a series of substantially rectangular-shaped openings in its upper surface, said openings being wider at their central portion, a concrete filling therein, a reinforcing plate within the tie resting against the upper portion of said tie near each end thereof, and a cup-shaped member resting against said plate and forming a chamber within the tie below each opening.

2. A metallic railway tie of equal dimensions throughout its length, a concrete filling therein, a series of substantially rectangular-shaped openings in its upper surface, said openings being wider at their central portion, a reinforcing plate within the tie resting against the upper portion of said tie near each end thereof, a cup-shaped member fitted against said plate and forming a chamber within the tie below each opening, and a fastening bolt having a rectangular-shaped head and a body portion of greater diameter than the head portion, said bolt being passed through said openings in the tie with its head portion resting within the said tie.

3. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, a chamber formed within the tie below each opening, a metal reinforce located within the tie near each end thereof, a securing rivet passing through the tie and through each reinforce near each end of the tie, and a securing rivet passing through the tie near its base portion.

4. A metallic railway tie, having a series of openings in its upper surface, a concrete filling therein, a reinforcing plate within the tie below each opening and resting against the upper portion of said tie, a cup-shaped member fitted against the said plate and forming a chamber within the tie below each opening, said tie having a wide upper and base portion and a narrow central portion, said base portion being turned slightly inward, and a securing rivet passing through the central portion of the tie near each end thereof and near its base portion.

5. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, a metal strengthening plate within the tie near each end thereof resting in contact with the inner surface of the tie, a chamber formed within the tie below each of said openings, and a securing rivet pass-

ing through the central portion of the tie near each end thereof and near its base portion.

6. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, a metal strengthening plate within the tie near each end thereof, a metal reinforce within the tie near each end thereof, said reinforce extending from the base portion of the tie upward and in contact with said strengthening plate, a securing rivet passing through the tie and through each reinforce near each end of the tie and another rivet passing through the tie near its base portion.

7. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, a chamber formed within the tie below each of said openings, a metal strengthening plate within the tie near each end thereof, a metal reinforce within the tie near each end thereof, said reinforce extending from the base portion of the tie upward and in contact with said strengthening plate, a securing rivet passing through the tie and through each reinforce near each end of the tie and another rivet passing through the tie near its base portion.

8. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, a waterproof insulating resilient cushion plate located on top of the tie, track rails, and rail fastening means comprising a metallic plate having an upward and inwardly extended portion at each end and an upward and inward overhanging portion at one end adapted to clamp the base of the rail, a fastening clip located at each end of said metallic plate, one end being beveled and resting beneath the upward and inwardly extended portion of the plate and the other end of said clip provided with an upward and inward extension adapted to clamp the base of the rail, and a fastening bolt passing through said clip and plates, the head of said bolt resting within the tie.

9. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, track rails, an insulating resilient cushion plate located on top of the tie beneath the track rail, and rail fastening means comprising a metallic plate having an upward and inward overhanging portion at one end thereof adapted to clamp the base of the rail and an upward and inward extension at each end of said plate, a fastening clip located on top of and at each end of the metallic plate, one end of said clip being beveled and resting beneath the upward and inward extension of the plate and the other end having an upward and inward extension adapted to clamp the base of the rail, and a fastening bolt secured above the clip and passing through said

plates and upper portion of the tie with its head resting within the tie.

10. A metallic railway tie having a series of openings in its upper surface, a concrete filling therein, track rails, an insulating resilient cushion plate located on top of the tie beneath the track rail, and rail fastening means comprising a metallic plate having an upward and inward overhanging portion at one end thereof adapted to clamp the base of the rail and an upward and inward extension at each end of said plate, a fastening clip located on top of and at each end of the metallic plate, one end of said clip being beveled and resting beneath the upward and inward extension of the plate and the other end having an upward and inward extension adapted to clamp the base of the rail, a fastening bolt secured above the clip and passing through said plates and upper portion of the tie with its head resting within the tie, and a key or wedge passed through the opening in the tie adjacent to said bolt and resting within the tie in contact with the head of the bolt to prevent the latter from turning.

11. A railway road bed comprising railway ties having a concrete filling therein, each tie having a series of openings in its upper surface, a strengthening plate within the tie in contact with its inner upper surface, track rails, and rail fastening means comprising a metallic plate having upward and inward extensions at each end and an upward and inward overhanging portion at one end, a fastening clip at each end of the metallic plate, one end of said clip being beveled and resting against and beneath the upward and inward extension at each end of the plate and the other end having an upward and inward extension adapted to clamp the base of the rail, a securing bolt having a rectangular head portion adapted

to be passed through an opening in said metallic plate and the opening in the tie and strengthening plate and rest within the tie, a locking key adjacent to said bolt and in contact with the head of the bolt, and a securing nut fitted to the upper threaded portion of the bolt.

12. A railway road bed comprising railway ties having a concrete filling therein, each tie having a series of openings in its upper surface, a strengthening plate within the tie in contact with its inner upper surface, track rails, and rail fastening means comprising a metallic plate having upward and inward extensions at each end and an upward and inward overhanging portion at one end, a fastening clip at each end of the metallic plate, one end of said clip being beveled and resting against and beneath the upward and inward extension at each end of the plate and the other end having an upward and inward extension adapted to clamp the base of the rail, a securing bolt having a rectangular head portion adapted to be passed through an opening in said metallic plate and the opening in the tie and strengthening plate and rest within the tie, a locking key adjacent to said bolt and in contact with the head of the bolt, a securing nut fitted to the upper threaded portion of the bolt, an insulating fiber sleeve surrounding the bolt within the opening in said metallic plate and clip, and an insulating fiber washer on top of said clip and beneath the securing nut.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB A. HYLE.
WALTER R. CARMODY.

Witnesses:

C. O. SHEPHERD,
LILLIAN C. KOCH