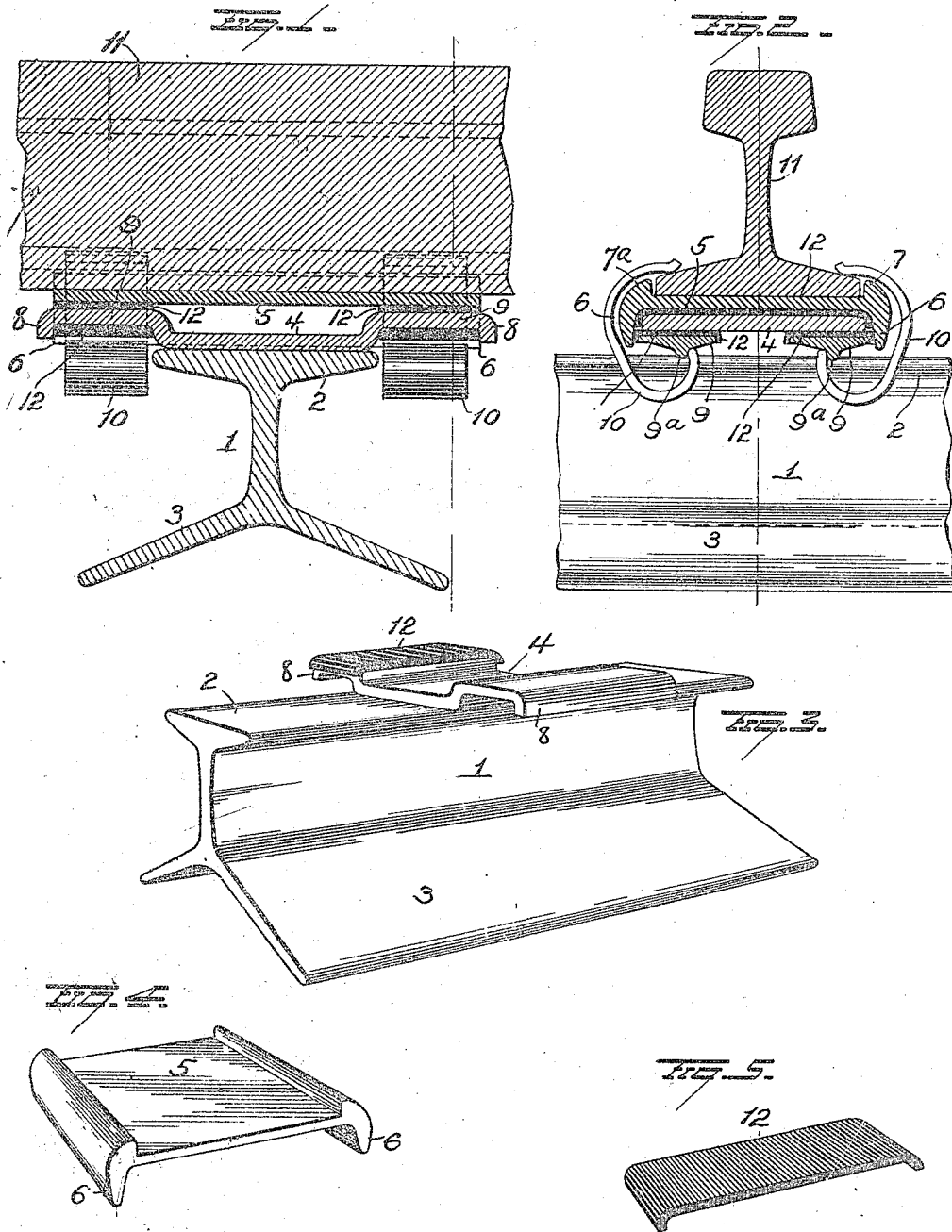


W. H. MORGAN.
 MEANS FOR SECURING RAILS TO METAL TIES.
 APPLICATION FILED SEPT. 12, 1912.

1,063,374.

Patented June 3, 1913.

2 SHEETS—SHEET 1.



WITNESSES
E. Nottingham
G. F. Downing

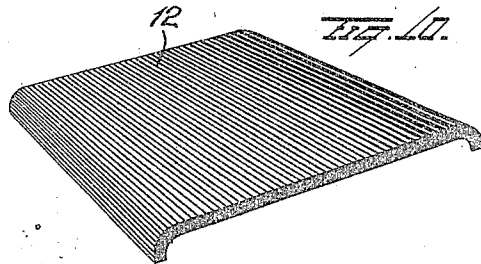
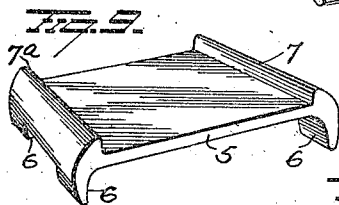
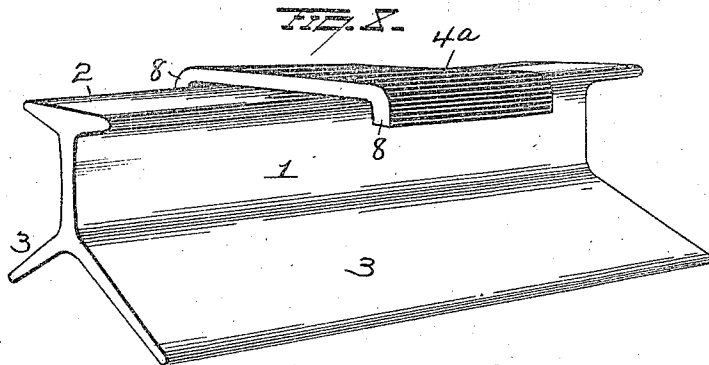
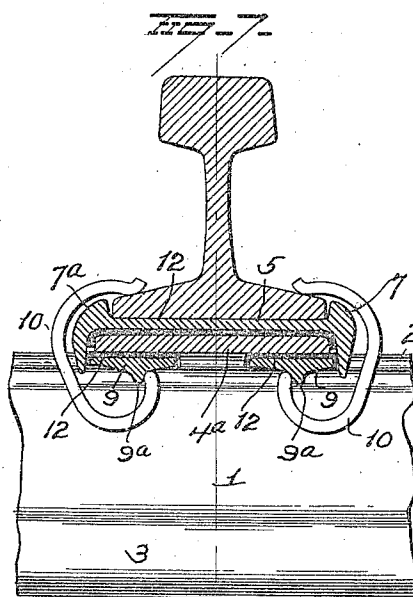
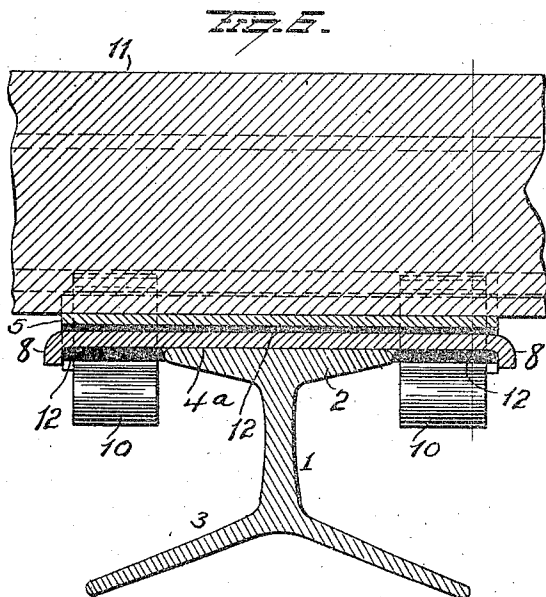
INVENTOR
W. H. Morgan
 By *H. A. Raymond*
 Attorney

W. H. MORGAN.
 MEANS FOR SECURING RAILS TO METAL TIES.
 APPLICATION FILED SEPT. 12, 1912.

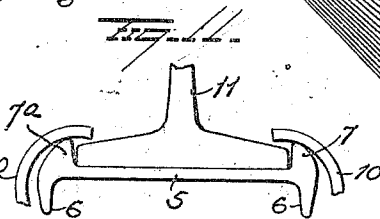
1,063,374.

Patented June 3, 1913.

2 SHEETS-SHEET 2.



WITNESSES
 E. J. Nottingham
 G. F. Downing



INVENTOR
 W. H. Morgan
 By H. A. Seymour
 Attorney

UNITED STATES PATENT OFFICE.

WILLIAM HENRY MORGAN, OF ALLIANCE, OHIO.

MEANS FOR SECURING RAILS TO METAL TIES.

1,063,374.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed September 12, 1912. Serial No. 720,031.

To all whom it may concern:

Be it known that I, WILLIAM H. MORGAN, a citizen of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Means for Securing Rails to Metal Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for securing rails to metal ties, and is designed as an improvement on the construction disclosed in my Patent 1,028,248 granted to me June 4th, 1912.

In the patent above referred to the fastener is designed for securing rails to straight ties, and clamping plates are seated on the flanged chair and are provided with lips overlapping the base flange of the rail, the clamping plates and chair being locked in place by spring clamps bearing against armor plates at the underside of the top flange of the tie and against the clamping plates. With this patented construction the spring clamps are located wholly in planes to the outside of the base flange of the rail, and the object of this invention is to so construct the parts that the spring clamps will overlap or bear directly against the base flange of the rail and be sufficiently close to the latter so as to be protected from the car wheels in the event of derailment.

A further object is to dispense altogether with clamping plates and thereby increase the effective hold of the spring clamps.

A further object is to so construct the straight ties, that the chairs used on the bent ties may, without any change, be used on the straight ties, thus dispensing with specially constructed chairs for the straight ties and with the clamping plates used with such specially constructed chairs.

With these and other objects in view my invention consists in the parts and combinations of parts, and in the details of construction, as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in section taken lengthwise the rail and at right angles to the tie. Fig. 2 is a view in section at right angles to the rail; Fig. 3 is a view of a section of the tie with the plate welded thereto; Fig. 4 is a view of the chair; Fig. 5 a view of one of

the insulating strips; Figs. 6 and 7 are views similar to Figs. 1 and 2, of a slightly modified construction; Figs. 8, 9 and 10 are views of the parts shown in Figs. 6 and 7 detached, and Fig. 11 shows the clamp overhanging but not in contact with the base flange of the rail.

In the system of railroad track construction, to which this invention is particularly adapted, straight metal ties alternate with Z-shaped ties, the ends of the latter being parallel and constituting supporting members for the rails, and the particular improvement herein disclosed relates solely to the means for securing the rails to the straight ties, the construction being such that the same chairs used on the rail supporting members of the Z-shaped ties may also be used in the straight ties, thus simplifying the manufacture and reducing to a considerable extent the cost of production.

1 represents a straight metal tie having a top flange 2, and a wider base flange 3, the latter being preferably concaved as shown so as to permit the ballast to pack under the ties, and 4 is a plate, spot or line welded, or riveted, or otherwise secured to the top flange 2 of the tie. There are two plates to each tie, and each plate carries a chair supporting the rail, but as the plates and the manner of securing the rails thereto are alike, a description of one will suffice for both. The plate 4 projects at the front and rear of the tie, as shown in Fig. 1, and the ends thereof are preferably bent upward, so that when the chair 5 is placed thereon its depending flange 6 will terminate above the top of the tie and act as a cushion or yielding support for the rail. The extreme ends of the plate 4 are turned downwardly, as at 8, so as to form end abutments for the insulated armor plates 9 against which the lower ends of the spring clamp 10 bear.

The chair 5 is substantially as shown in my Patent 1,026,108, granted May 14th, 1912, and comprises a body having depending flanges 6 and upwardly projecting flanges 7 and 7', at its side edges. This chair rests on the plate and extends lengthwise the latter, or in the direction of the length of the rail, and the two depending flanges 6 thereof overhang and bear against the side edges of the raised portion of the plate 4, and absolutely prevent any lateral or spreading movement of the chairs,

and consequently of the rails seated on the chairs. The rail rests on the chair between the upwardly projecting flanges 7 and 7^a thereof, the inner wall of the latter of which is nearer the center of the chair intermediate the depending flanges, so that by reversing the position of the chair end for end, the rail 11, which as before stated rests between and is sustained laterally by said flanges 7 and 7^a, can be adjusted toward its companion rail to compensate for wear.

The parts above described are locked together by the spring clamps 10 each of which comprises an upper jaw terminating in an upwardly curved free end; and a lower jaw terminating in an upwardly curved free end, the clamps being of a size sufficient to rest clear of the plate 4 and chair. The upper end of the clamp may bear directly on the rail or it may overlie the base flange of the rail without contacting therewith, while the lower end rests in rear of a rib 9^a on the armor plate 9, the latter being constructed substantially as shown in the patent above referred to, and resting against the underside of the plate 4 at opposite sides of the tie. If it be necessary to insulate the rail from the tie, suitable insulating material 12 is introduced between the armor plate 9 and lower faces of the projecting ends of plate 4, and also between plate 4 and chair 5.

The clamps 10 above referred to, are preferably made of hard tough and finely grained steel, or alloy of a size sufficient to hold the rails to their seats with a yielding pressure. They may be inserted and driven on endwise in the direction of the length of the chairs, or they may be sprung on over the side edge of the base flange of the rail.

The construction shown in Figs. 6 and 7 is substantially the same as that above described except that the plate 4^a is flat instead of having upturned ends. With this straight construction, as in Figs. 6 and 7, it is necessary to cut away or recess the depending flanges of the chair as shown in Fig. 9, to receive the top flange of the tie.

In Figs. 2 and 7 the clamps are shown bearing directly against the top surface of the base flange of the rail. In Fig. 11 the upper jaw of the clamp is shown as overhanging the base flange of the rail but not in contact therewith. In this latter construction the clamps bear against the top edges of the flanges 7 and 7^a of the chair, leaving a slight clearance between the top of the base flange and the free end of the jaw, so as to permit the rail to have a slight vertical movement under a rolling load without disturbing the tie in the ballast. With this latter construction the rails are loosely seated on the chairs but as the resultant of the wheel pressure always falls

within the bases of the rails, the only pressure to which a rail is subjected, other than downward, is an outward one which is taken care of by the side flanges of the chairs, hence there is theoretically no tendency for the rails to tip, but as the ends of the clamps overlap the base flanges of the rails, and are only removed therefrom a limited distance, tipping to anything like a dangerous extent would be absolutely prevented by the ends of the clamps.

When the straight ties are used with Z-shaped ties as above explained, the plates 4 may be sufficiently long to overlap and rest on the adjacent ends of the Z-shaped ties so that the joint of the rail will be supported by both ties.

The chairs and plates can be rolled, thus simplifying the manufacture and reducing the cost of production, and by the use of the plates, the same chair can be used for both the straight and Z-shaped ties.

With this construction the clamps directly engage or overhang the rail, instead of a clamping plate, and besides being more effective, due to leverage, they are located close up to the rail so that they are not liable to be dislodged by the wheels or flanges in the event of derailment.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction shown and described, but

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

1. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides of the latter, a flanged chair on said plate, a rail on the chair, and spring clamps supported by the underside of the projecting ends of the plate and overhanging the base flange of the rail.

2. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides of the latter, the free ends of said plate having downwardly flanged ends, a flanged chair on said plate, a rail on the chair, and spring clamps supported by the underside of the projecting ends of the plate and overhanging the base flange of the rail.

3. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides, the ends of said plate being bent upwardly to form raised seats for the chair, a flanged chair resting on said seats, a rail on the chair and spring clamps supported by the underside of the projecting ends of the

plate and overhanging the base flange of the rail.

4. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides of the latter, the projecting ends of said plates being bent upwardly to form raised seats and the extreme ends turned downwardly to form end abutments, a flanged chair resting on said seats and spring clamps supported by the underside of the projecting ends of the plate and bearing against the base flange of the rail.

5. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides of the latter, a flanged chair seated on said plate, ribbed armor plates resting against the underside of the projecting ends of the plate, and spring clamps each bearing at one end against an armor plate with its other end overhanging the base flange of the rail.

6. The combination of a straight metal tie, a plate secured to the top thereof transversely of the tie and projecting at both sides of the latter, ribbed armor plates seated against the lower face of the projecting ends of the plate, a flanged chair seated on the plate, spring clamps each bearing at its ends against an armor plate and the base flange of the rail, and insulat-

ing material inserted between the several parts for insulating the rail from the tie.

7. The combination of a metal tie, a plate secured to the top thereof and projecting at both sides of the latter, a flanged chair on said plate, a rail on the chair, and spring clamps supported by the underside of the projecting portions of the plate and overhanging the base flange of the rail.

8. The combination of a metal tie, a plate secured to the top thereof, with its ends in a plane above the top surface of the tie, a flanged chair in said plate, a rail on the chair and spring clamps supported by the ends of the plate, and overhanging the base flange of the rail.

9. The combination of a metal tie, a plate secured to the top thereof, the ends of said plate being bent upwardly to form raised seats for the chair, a flanged chair resting on said seats, a rail on the chair and spring clamps supported by the underside of the bent ends of the plate and overhanging the base flange of the rail.

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

WILLIAM HENRY MORGAN.

Witnesses:

JOHN H. LLOYD,
N. C. FETTERS.