

S. CLARY & J. BUTLER.

TIE AND RAIL FASTENER.

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1,025,686.

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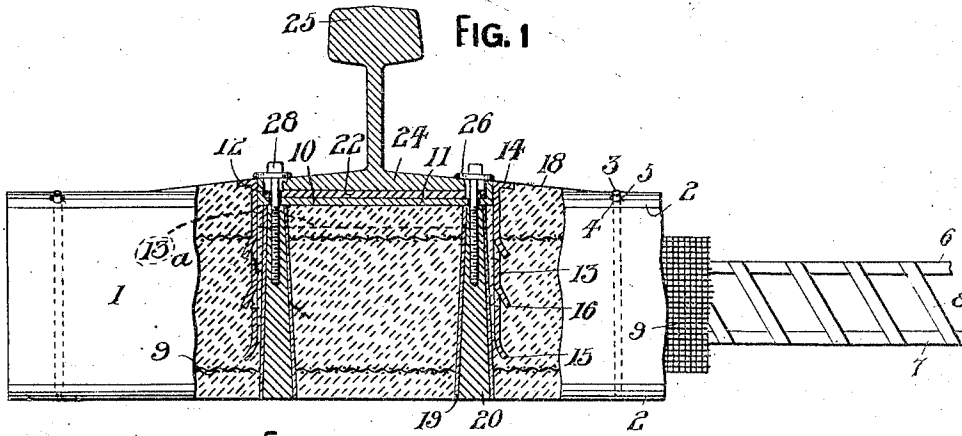


FIG. 2

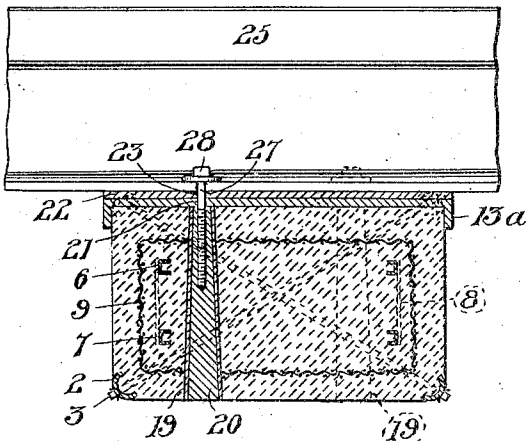


FIG. 3

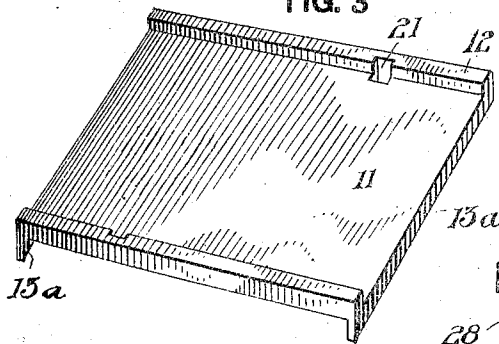


FIG. 5



FIG. 6

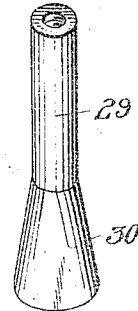


FIG. 4

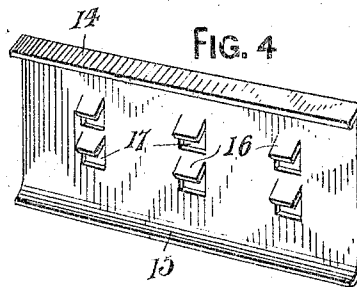
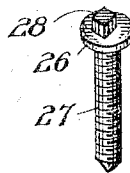


FIG. 7



WITNESSES:

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TIE AND RAIL-FASTENER.

1,025,686.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, (1) SIMON CLARY and (2) JOHN BUTLER, citizens of the United States of America, residing at (1) Carnegie and (2) Steubenville, in the counties of (1) Allegheny and (2) Jefferson and States of (1) Pennsylvania and (2) Ohio, have invented certain new and useful Improvements in Ties and Rail-Fasteners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to ties and rail fasteners, and the objects of our invention are to substitute concrete and metal for the ordinary wooden ties, and to provide an extremely light and durable concrete metallic tie at a minimum cost.

Other objects of our invention are to provide a tie of the above type possessing sufficient strength and firmness to support the great weight of rolling stock, and the requisite amount of elasticity to prevent the rolling stock from being injured.

Further objects of our invention are to furnish a metallic reinforced concrete tie with a fastener that will preserve the alignment of rails, and to provide a fastener that will prevent vertical and lateral displacement of the rails and at the same time permit expansion and contraction.

Still further objects of our invention are to provide a tie and fastener that can be installed without the use of skilled labor and maintained at a comparatively small cost by practically eliminating the service of a track walker.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing, wherein like numerals denote corresponding parts throughout the several views, in which:—

Figure 1 is a side elevation of a portion of a tie partly broken away and partly in section, Fig. 2 is a cross sectional view of a tie in accordance with this invention, Fig. 3 is a perspective view of a detached rail plate adapted to form part of the tie, Fig. 4 is a perspective view of a detached anchor plate adapted to form part of the tie, Fig. 5 is a perspective view of a detached con-

ical-shaped split sleeve adapted to form part of the tie, Fig. 6 is a perspective view of a socket adapted to form part of the tie, and Fig. 7 is a perspective view of a screw bolt used in connection with the tie.

The tie comprises an oblong concrete body 1 rectangular in cross section and conforming in size and shape to the present type of wooden ties. The concrete body 1 has the upper and lower longitudinal edges thereof provided with semi-cylindrical metal protecting or corner pieces 2, and these pieces, throughout the length of the tie and at such points as may be deemed necessary, are connected by diagonally disposed tie rods 3 having the ends thereof extending through openings 4 provided therefor in said corner pieces. The ends of the tie rods 3 have transversely arranged cotter pins 5 or other fastening means adapted to retain said tie rods in engagement with the corner pieces.

The concrete body 1 is reinforced by longitudinal channel bars 6 and 7, the bars 6 being arranged in proximity to the upper surface of the tie and the bars 7 in proximity to the bottom of the tie. The bars 6 and 7 are connected by angularly disposed side bars 8, thereby providing a metallic lattice-work that adds rigidity to the concrete body. The concrete body 1 is further reinforced from one end thereof to the opposite end by interwoven wire or wire mesh 9, which is arranged between the lattice-work and the walls of the tie.

As the ends of the tie are identical in construction for supporting rails, I deem it only necessary to describe the rail fastener used in connection with one end of the tie, it being understood that the fastener at the opposite end is similar.

The concrete body, adjacent to the end thereof, is recessed to provide a flat seat 10 for a rail plate 11, said plate having vertical transverse walls 12 and depending longitudinal walls 13^a adapted to engage the longitudinal sides of the concrete body 1. The concrete is cut away to provide clearance for said rail plate, and to brace the walls 12 of said plate, vertical anchor plates 13 are employed. These anchor plates have horizontal flanges 14 at the upper edges thereof and the lower edges of said plates are bent outwardly, as at 15 to cooperate with a plurality of prongs 16 in anchoring the plates 13 transversely of the concrete

body. The prongs 16 are produced by cutting or shearing the plates 13, as at 17 and bending the cut or sheared material outwardly in the same direction as the lower edges of said anchoring plates. The interwoven wire 9 and the lattice-work are cut away to provide clearance for said anchoring plates. These anchoring plates engage the vertical walls 12 of the rail plate 11 and the top of the concrete body 1 is enlarged or swelled, as at 18 to snugly brace the lateral flanges 14 of the anchoring plates 13.

Embedded within the concrete body 1 and extending from the rail plate 11 to the bottom of the tie are conical-shaped split metallic sleeves 19 adapted to hold Babbitt metal 20. The rail plate 11 above each sleeve is provided with an opening 21, and upon said rail plate is located a cushion plate 22 having openings 23 registering with the openings 21. The cushion plate 22 is preferably made of wood or fiber and is adapted to support the base flanges 24 of a rail 25. Engaging the base flanges 24 are the flat heads 26 of screw bolts 27 extending through the openings 23 and 21 into the Babbitt metal 20. The flat heads 26 extend on to the base flange 24 and extend over the vertical walls 12 of the rail plate on to the lateral flanges 14 of the anchoring plates 13. In order that the screw bolts can be easily screwed into the Babbitt metal 20, the heads 26 are provided with rectangular portions 28 to accommodate a wrench or other instrument. In lieu of the sleeves 19 and the Babbitt metal 20, we can use wooden sockets 29 to receive the screw bolts 27, said sockets having conical-shaped lower ends 30 whereby they will be anchored in the concrete body 1 and prevented from becoming vertically displaced. The metallic reinforcements for the concrete body are cut away to provide clearance for the sleeves 19 or the sockets 29 should said sockets be used.

From the foregoing it will be observed that we have devised a metallic reinforced concrete tie having sufficient rigidity to withstand the stresses and strains exerted by heavy rolling stock, and furthermore, that the fastener which we employ insures a positive seating of rails upon the tie.

While in the drawing there are illustrated the preferred embodiments of the invention, it is to be understood that the structural elements thereof are susceptible of such changes in the size, shape and manner of assembling as fall within the scope of the appended claims.

What we claim is:—

1. In a tie and rail fastener, a concrete body having longitudinal metallic reinforcements adapted to add rigidity to said tie, longitudinal corner pieces carried by

said body, and means extending diagonally of said body for coupling said corner pieces together in pairs thereby maintaining them in position.

2. In a rail fastener, the combination with rails, a concrete metallic reinforced body adapted to support said rails, of rail plates carried by said body for supporting the base flanges of said rails, vertically disposed anchoring plates engaging the rail plates to prevent longitudinal movement thereof, vertical sleeves arranged within said body, and screw bolts anchored within said sleeves and engaging the base flanges of said rails for retaining these latter upon said rail plates and further engaging with the anchoring plates to prevent longitudinal movement thereof.

3. In a rail fastener, the combination with rails, a concrete metallic body adapted to support said rails, of rail plates carried by said body for supporting the base flanges of said rails, vertical sleeves arranged within said body, screw bolts anchored within said sleeves and engaging the base flanges of said rails for retaining these latter upon said plates, said bolts further engaging said anchoring plates to prevent longitudinal movement thereof and pronged transverse anchoring plates arranged within said bolts further engaging said anchoring plates to prevent longitudinal movement thereof.

4. In a tie and rail fastener, a concrete body, a longitudinal lattice-work arranged in said body, interwoven wire arranged in said body and surrounding said lattice-work, corner pieces arranged longitudinally of said body, tie rods connecting said corner pieces, and means including screw bolts adapted to retain rails upon said tie.

5. In a tie and rail fastener, a concrete body, a longitudinally extending lattice work embedded in said body, rail plates arranged adjacent to the ends of said body and adapted to support rails, pronged anchoring plates arranged transversely of said body and bracing said rail plates, cushion plates carried by said rail plates, and means including screw bolts adapted to retain the rails upon said tie and to further prevent vertical movement of the anchoring plates.

6. A tie and rail fastener comprising a concrete body, a longitudinally extending lattice work embedded in said body, a foraminous element embedded in the body and surrounding and spaced from said lattice work, rail retaining means anchored in said body, corner pieces mounted against the corners of said body, and means for coupling said pieces in pairs thereby maintaining said corner pieces in position.

7. A tie and rail fastener comprising a reinforced concrete body, rail plates carried by said body for supporting the base flanges of rails and having end flanges en-

gaging the sides of said body to prevent lateral displacement of said plates, each of said plates having vertical transverse walls, a cushioning member mounted upon said
5 plates between said walls, vertically disposed anchoring plates mounted in said body and abutting against the rail plates to prevent longitudinal movement thereof, vertically
10 disposed sleeves arranged in said body below said plates, screw bolts having their inner ends anchored in said sleeves and extending through said rail plates and cushions and having their outer ends engaging the flanges of the rails for maintaining
15 these latter in position and further engaging the anchoring plates to prevent vertical movement thereof

8. A tie and rail fastener comprising a reinforced concrete body, rail plates carried
20 by said body for supporting the base flanges of rails and having end flanges engaging the sides of said body to prevent lateral displacement of said plates, each of said plates having vertical transverse walls, a cushioning
25 member mounted upon said plates be-

tween said walls, vertically disposed anchoring plates mounted in said body and abutting against the rail plates to prevent longitudinal movement thereof, vertically disposed sleeves arranged in said body below
30 said plates, screw bolts having their inner ends anchored in said sleeves and extending through said rail plates and cushions and having their outer ends engaging the flanges of the rails for maintaining these latter in
35 position and further engaging the anchoring plates to prevent vertical movement thereof, and protecting members mounted against the corners of said body, and diagonally disposed means for coupling said
40 members in pairs, thereby maintaining these latter in position.

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

SIMON CLARY.
JOHN BUTLER.

Witnesses:

MAX H. SROLOVITZ,
MARGARET COLLEY.