

G. J. CLARK.
RAILWAY TIE AND RAIL FASTENING DEVICE.
APPLICATION FILED FEB. 6, 1913.

1,063,775.

Patented June 3, 1913.

2 SHEETS-SHEET 1.

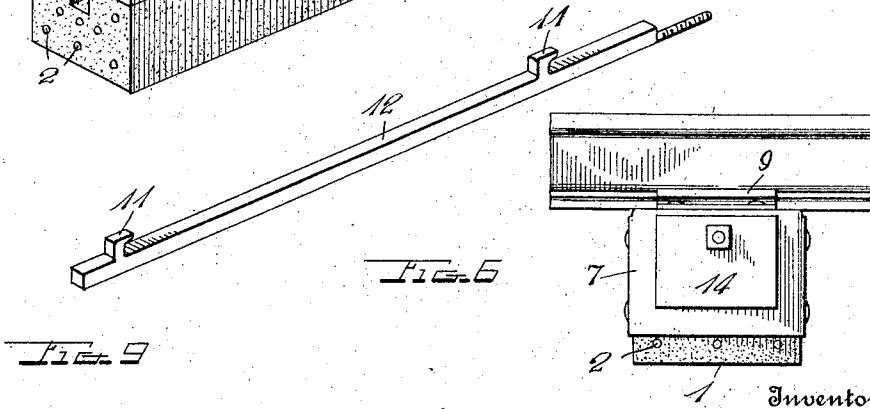
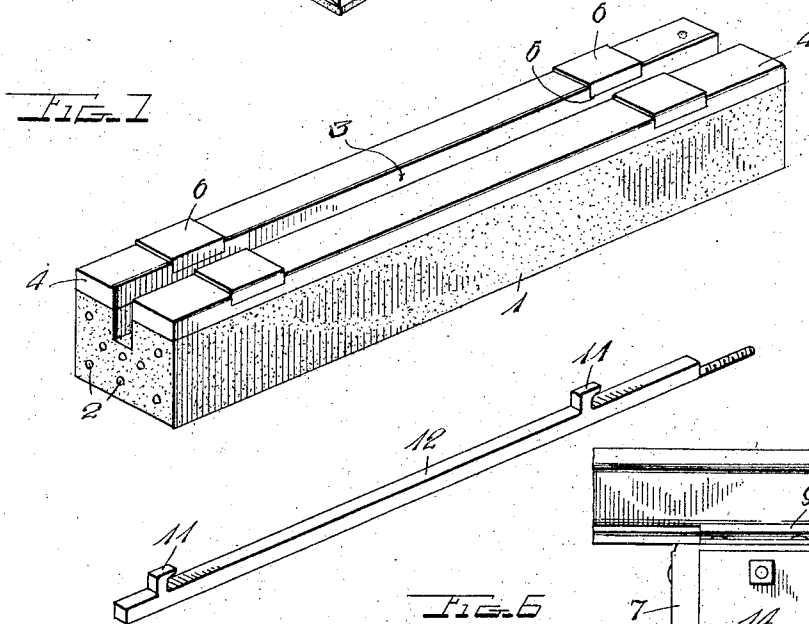
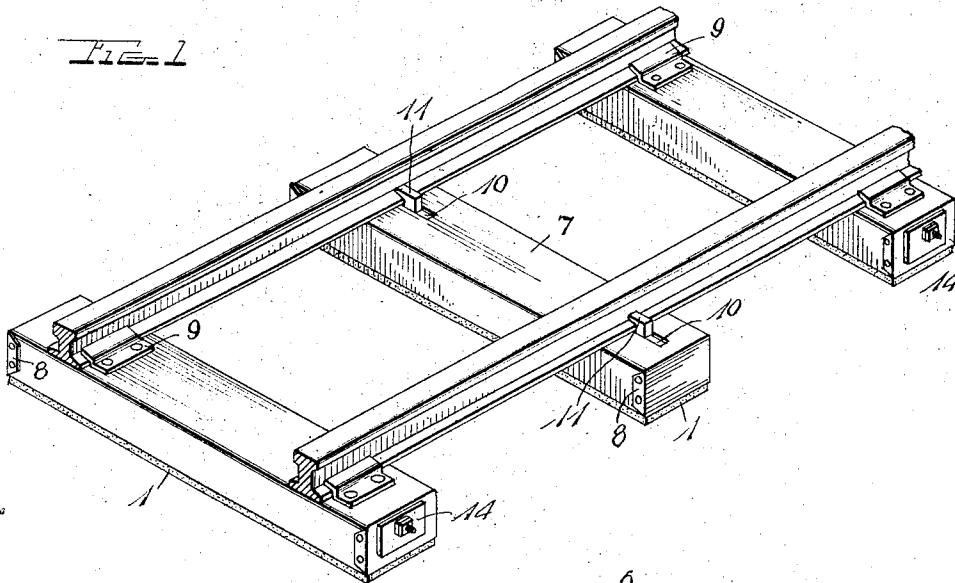
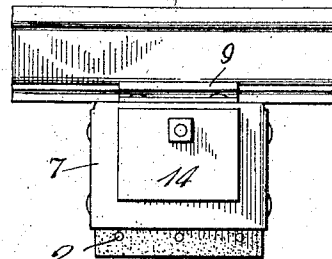


FIG. 4



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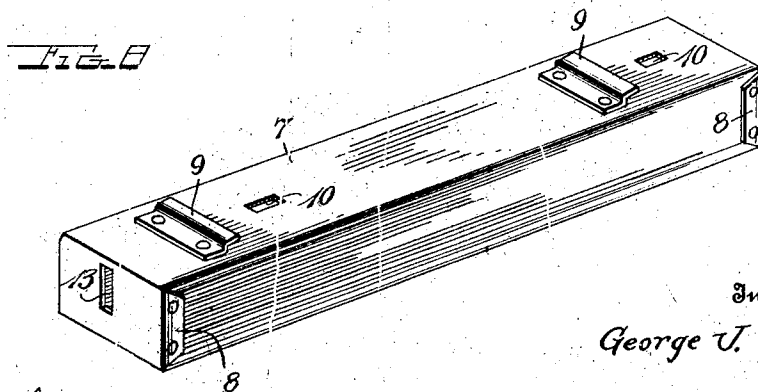
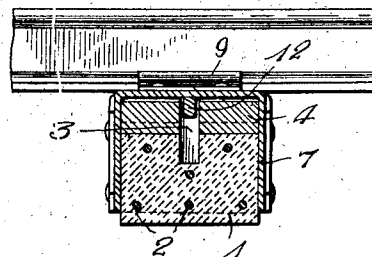
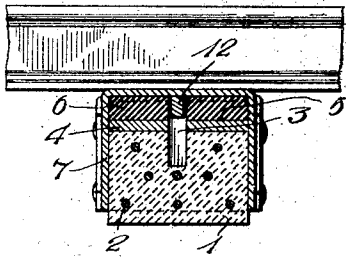
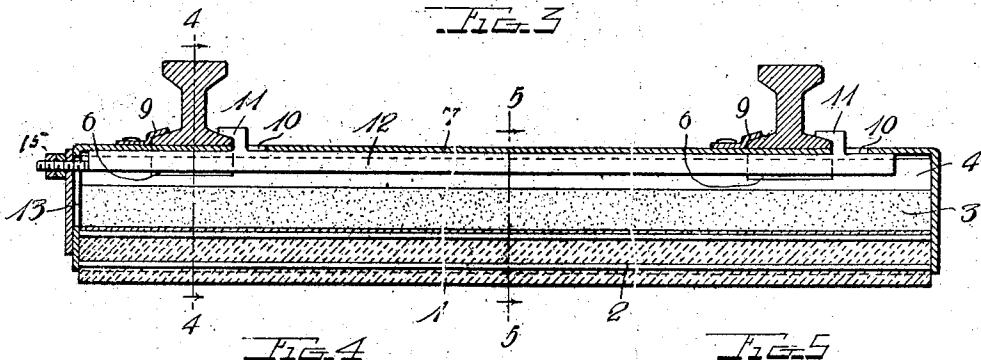
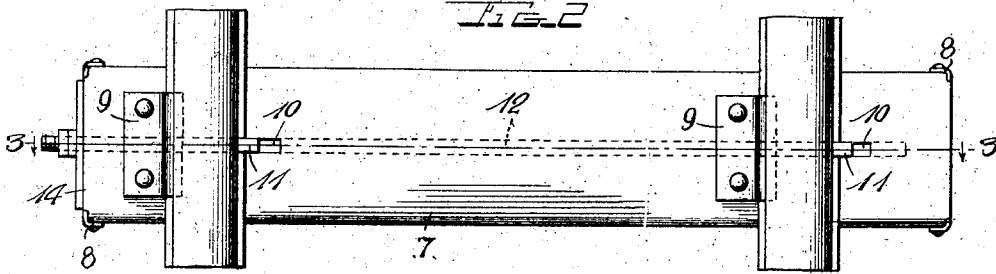
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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RAILWAY-TIE AND RAIL-FASTENING DEVICE.

1,063,775.

Specification of Letters Patent.

Patented June 3, 1913.

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To all whom it may concern:

Be it known that I, GEORGE J. CLARK, a citizen of the United States, residing at Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Railway-Ties and Rail-Fastening Devices; and I do 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.

This invention relates to improvements in railway ties and particularly to reinforced concrete ties and rail fastening devices.

One object of the invention is to provide a concrete railway tie having an improved arrangement of reinforcing members and a metal casing whereby a strong, rigid structure is provided for firmly supporting the rails engaged therewith.

Another object is to provide a tie having an improved construction and arrangement of rail fastening devices by means of which the railway rails are secured to the tie and held against spreading or upsetting.

With these and other objects in view the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a portion of two railway rails secured to my improved ties; Fig. 2 is a top plan view of one of the ties and portions of the rails secured thereto; Fig. 3 is a central longitudinal section thereof; Fig. 4 is a vertical cross section taken on the line 4-4 of Fig. 3; Fig. 5 is a similar view taken on the line 5-5 of Fig. 3; Fig. 6 is an end view of one of the ties and a portion of a rail secured thereto; Fig. 7 is a detail perspective view of the inner concrete portion of the tie and the rail supporting members thereof; Fig. 8 is a similar view of the outer or casing member of the tie; Fig. 9 is a detail perspective view of one of the rail fastening members of the tie.

By referring to the accompanying drawings, it will be seen that my improved tie comprises an inner concrete member 1 having arranged through or embedded therein longitudinally disposed metal reinforcing rods 2 which are so distributed through the concrete member as to rigidly support and reinforce the latter. In the upper side of

the member 1 is formed a central longitudinally disposed groove or channel 3 the purpose of which will be hereinafter described. Engaged with the upper surface of the concrete member 1 on opposite sides of the groove 3 are strips 4 of wood or other slightly resilient material. In the upper sides of the strips 4 adjacent to their ends and beneath the portions of the tie with which the rails are engaged are formed recesses 5 in which are arranged cushioning blocks 6 formed of rubber or other resilient or elastic material, said blocks projecting a slight distance above the upper surfaces of the strips 4 as shown.

Arranged over and engaged with the concrete inner member of the tie is an outer member or casing 7 which is constructed of metal and may be cast or formed in any suitable manner and is here shown as being constructed from a single piece of sheet metal cut and bent into shape and having its ends provided with attaching flanges 8 which are engaged with and riveted to the sides adjacent to the ends thereof as clearly shown in Fig. 8 of the drawings. The casing when thus constructed is adapted to be placed over the concrete inner member 1 of the tie and to rest on the cushioning blocks 6 in the strips 4 on the upper surface of said concrete member of the tie.

Secured to the upper side of the casing or outer member 7 of the tie by rivets or bolts or other suitable fastening devices are rail fastening clips 9 one of which is disposed in position to engage the outer side or outer base flange of one of the rails while the other is disposed in position to engage the inner side or base flange of the other rail. In the upper side of the casing or outer member 7 and spaced a suitable distance from the clips 9 are slots 10 which are disposed in positions adjacent to the opposite sides of the rails from that with which the clips 9 are engaged and which are provided to receive hook shaped rail fastening lugs 11 formed on the upper edge of a rail fastening bar 12 which is disposed in the groove 3 of the inner member of the tie and between the inner edges of the strips 4 as shown. The bar 12 has one end reduced and threaded and engaged with a slot 13 in the adjacent end of the casing or outer member 7 of the tie and with said threaded projecting end of the bar is engaged clamping

nuts which are adapted to be screwed up on the end of the bar and into engagement with a washer 14 arranged between the nuts and the adjacent end of the tie thereby drawing the hook shaped lugs into operative engagement with the flanges on the opposite sides of the rails from that with which the clips 9 are engaged. In thus drawing the lugs 11 in engagement with the flanges of the rails it will be seen that the latter will be tightly clamped between said lugs and the clips and will thus be securely fastened to the ties. The inner sides of the flange engaging portions of the lugs 11 are beveled or inclined to correspond with the inclination of the upper side of the rail flanges, so that when the lugs are drawn up into engagement with the flanges of the rails, the engagement of the inclined surfaces of the lugs and flanges will draw the rails downwardly into tight engagement with the outer member of the tie and will thus prevent the rails from upsetting or spreading.

In arranging the ties each alternate tie is reversed or extends in the opposite direction from the next adjoining tie as clearly indicated in Fig. 1 of the drawings, so that the clips of every other tie engage the flanges on one side of the rails, while the flanges on the same sides of the rails are engaged by the lugs of the intermediate ties. By arranging the fastening devices in this manner it will be seen that the rails are rigidly braced and fastened to the ties.

By constructing the fastening devices as herein shown and described it will be seen that in order to release the rails it is simply necessary to unscrew the nuts 15 from the threaded end of the rail fastening bars whereupon the bars may be pushed back into the casings or outer members of the ties and the lugs 11 thereon thus moved back in the slots 10 and disengaged from the flanges of the rails after which the bar 12 and lugs may be permitted to drop in the groove 3 of the inner member of the tie, thus permitting the rails to be disengaged from the clips 9 and removed from the ties. When the bar 12 and lugs are thus lowered in the groove 3, said bar and lug may be drawn outwardly through the slot 13 in the end of the casing or outer member 7 and thus removed from the tie. The strips 4 and the arrangement of the cushioning block 7 therein beneath the upper side of the casing engaged by the rails, will form a yielding or resilient support for the rails which will absorb the shocks and jars that are occasioned by the passage of the rolling stock over the rails.

From the foregoing description taken in connection with the accompanying drawings,

the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

1. A railway tie comprising a reinforced concrete inner member, an outer hollow member or casing adapted to be engaged with said inner member, wooden cushioning strips arranged on the upper side of said inner member between the same and the top of the outer member, resilient cushioning blocks arranged in said strips below the portion of the outer member engaged by the rails, rail fastening clips secured to the outer member of the tie and adapted to engage one side of the rails and removable rail fastening devices arranged in said outer member and adapted to be engaged with the opposite side of the rails from that with which said clips are engaged whereby the rails are fastened to the ties and held against spreading or upsetting.

2. A railway tie comprising a reinforced concrete inner member having therein a longitudinal groove, an outer metal member or casing adapted to be engaged with said inner member, said outer member having in one end and in its upper side longitudinal slots, rail engaging clips secured to the outer side of said casing member and adapted to engage the inner side of one rail and the outer side of the other rail, a rail fastening bar arranged in said outer casing member and having a threaded outer end projecting through the slot in one end of said casing member, rail engaging lugs formed on said bar and having a sliding engagement with the slots in the top of said casing member, and nuts arranged on the threaded end of said fastening bar and adapted to be screwed up thereon to draw the rail fastening lugs of the bar into operative engagement with the opposite sides of the rail flanges from that engaged by said clips whereby the rails are securely fastened to the outer member of the tie and whereby said fastening devices may be disengaged from the rails and the latter released.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE J. CLARK.

Witnesses:

GEORGE J. SOLLY,
GEORGE K. KILLEY.