D. B. FABER.

VITREOUS CROSS TIE AND RAIL FASTENING.

APPLICATION FILED JUNE 6, 1916.

1,228,008.

Patented May 29, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

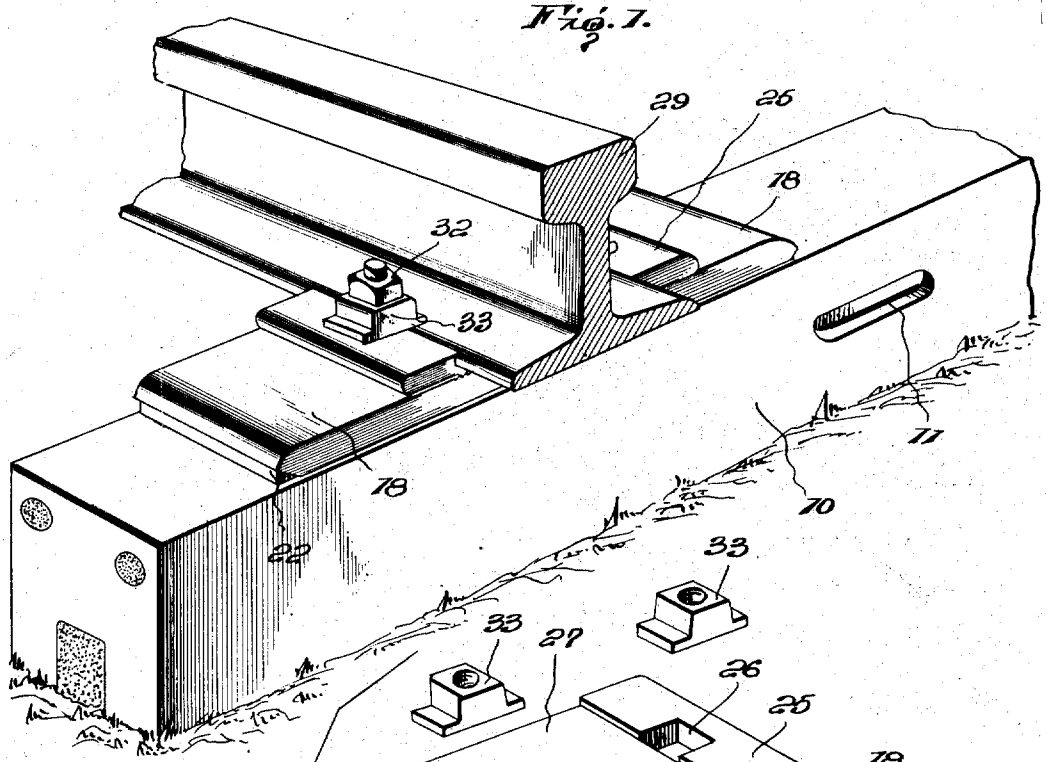


Fig. 2.

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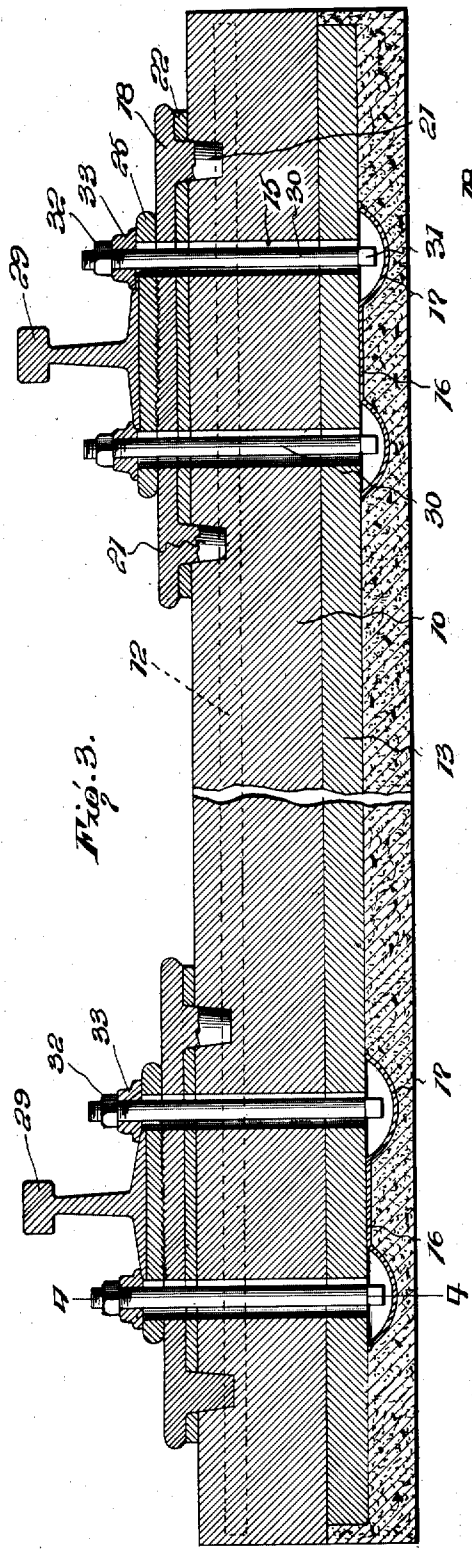


Fig. 3.

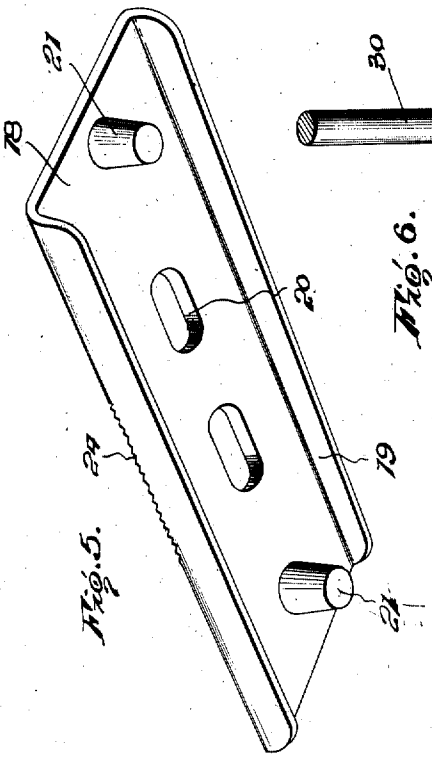


Fig. 5.

Fig. 6.

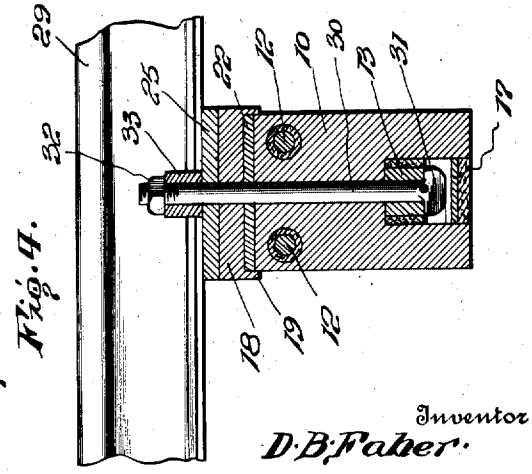


Fig. 4.

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UNITED STATES PATENT OFFICE.

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VITREOUS CROSS-TIE AND RAIL-FASTENING.

1,228,008. Specification of Letters Patent. Patented May 29, 1917.

Application filed June 6, 1916. Serial No. 102,004.

To all whom it may concern:

Be it known that I, DANIEL B. FABER, a citizen of the United States, residing at Uhrichsville, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Vitreous Cross-Ties and Rail-Fastenings, of which the following is a specification.

This invention contemplates an improved railway cross tie and rail fastener and has as its primary object to provide a construction wherein the body of the tie will be formed of vitreous material to thus effect a saving over the commonly used wooden cross tie while, at the same time, the durability of the tie body will be materially enhanced.

The invention has as a further object to provide a tie of this character employing a reinforcing bar which will also form an anchoring member for the rail fastenings.

A further object of the invention is to provide a rail fastening having a chair plate which may be adjustably shifted laterally upon the tie to compensate for any shrinkage in the tie body and also for properly spacing the rails.

And a still further object of the invention is to provide a construction employing blocks for properly cushioning and leveling the rails and wherein such blocks will be completely housed to consequently prevent the deterioration thereof.

Other and incidental objects will apear as the description proceeds and in the drawings wherein I have illustrated the preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views,

Figure 1 is a fragmentary perspective view showing one extremity of my improved tie with a conventional type of rail engaged with the adjacent chair thereof,

Fig. 2 is a perspective view showing the type of chair employed, the parts of the chair being detached but in proper relative position,

Fig. 3 is a horizontal sectional view showing the arrangement of the reinforcing bar within the body of the tie to provide an anchoring member to which the rail fastenings are connected, the rails shown being conventionally illustrated,

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3 and particularly showing the engagement between the rail fastenings and the said bar,

Fig. 5 is a perspective view of the type of bed plate used in connection with my improved rail chair, and

Fig. 6 is a fragmentary perspective view showing the formation of the rail fastenings to engage with the reinforcing bar of the tie.

In carrying out the invention, I employ a tie 10. The body of this tie is preferably of rectangular configuration in cross section and is formed of vitreous material, a clay composition being employed which is burnt in the well known manner to provide the finished tie body. Upon opposite sides thereof, the tie body is provided with one or more pairs of oppositely disposed recesses or sockets 11 for receiving tongs or other tools for lifting or carrying the tie from place to place. Formed in the body of the tie adjacent the upper side thereof, are transversely spaced openings which extend longitudinally of the tie body from end to end thereof and receive reinforcing rods 12 which are, as particularly shown in Fig. 1 of the drawings, incased in cement and entirely covered thereby to prevent the deterioration of the said rods. Upon its lower side, the tie body is further provided with a longitudinally extending groove reaching from end to end of the tie and in which is seated a reinforcing bar 13 arranged substantially midway the side faces of the tie. Formed in the upper side of the tie adjacent each end thereof are longitudinally spaced recesses or sockets 14 between each pair of which are arranged longitudinally spaced elongated openings 15 which, as particularly shown in Fig. 3 of the drawings, pass through the bar 13. Arranged to extend over the inner extremities of said openings are hood plates 16. These plates are preferably each formed from a strip of suitable sheet metal, seating midway its ends against the bar 13 with its extremities curved laterally from the bar and providing hoods 17 spaced from the inner ends of the

adjacent openings. As best shown in Figs. 1 and 2 of the drawings, the bar 13 is also incased in cement which entirely covers the said bar as well as the hood plate 16 to prevent the deterioration thereof, this cement filling also serving to hold the said hood plates in position.

From the preceding description, it will be seen that I thus provide a vitreous tie which may be readily formed and which when used to displace the commonly employed wooden tie will effect a considerable saving while, at the same time, the vitreous tie will prove much more durable. Mounted upon the tie, adjacent each end thereof, is a chair for receiving a rail. This chair includes a bed plate 18 overlying the upper face of the tie and formed, at opposite sides thereof, with longitudinally extending flanges 19 engaging the sides of the tie. The plate is formed intermediate the ends thereof with spaced elongated openings 20 registering with the adjacent openings 15 in the tie body and projecting laterally from the lower side of the plate are attaching lugs 21 arranged adjacent the ends of the plate and detachably received within the recesses 14 at the contiguous end of the body of the tie, these lugs being adapted to hold the bed plate against longitudinal shifting movement upon the tie.

Arranged beneath the chair plate to seat against the upper face of the tie, is a combined cushioning and leveling strip or element 22. This strip is preferably formed of wood or other similar material and is received between the flanges 19 of the bed plate so that the said bed plate will thus provide a housing for the said strip protecting the said strip from the weather and preventing the deterioration thereof. The strip 22, adjacent its ends, is provided with openings to receive the lugs 21 of the bed plate so that the said strip cannot slip from beneath the said plate and is further provided, intermediate its ends, with spaced elongated openings 23 registering with the openings 15 in the adjacent end of the tie and the openings 20 in the bed plate.

Upon its upper side, the plate 18 is serrated or otherwise formed with a series of teeth or ridges 24 extending transversely of the plate between the openings 20 therein, and mounted upon the said plate, is a chair plate 25. This plate 25 is, adjacent opposite ends thereof, provided with elongated openings 26 registering with the openings 20 in the bed plate 18, the openings 23 in the cushioning strip 22 and the openings 15 in the contiguous end of the tie. Upon its upper side, the plate 25 is cut away between the openings 26 to provide a transversely extending rail seat 27 while the lower side of the plate beneath the said seat, is serrated or otherwise formed to provide a series of transversely extending teeth or ridges 28 adapted to coact with the teeth 24 of the bed plate 18 for holding the chair plate against accidental shifting movement longitudinally upon the bed plate.

As particularly shown in Figs. 1 and 3 of the drawings, the seats 27 of the chair plates are formed to receive the base flanges of the rails which have been conventionally shown at 29. Loosely fitted through the openings 26 of the chair plate and the openings in the bed plates registering therewith to extend freely through the openings 15 in the tie, are bolts or fastening devices 30. These bolts, at their inner ends, are provided with heads 31 which are freely received within the hoods 17 of the plates 16 and are engageable with the bar 13 of the tie. The outer ends of the bolts are screw threaded to receive nuts 32 and loosely fitted upon the said bolts beneath the nuts 32, are attaching blocks 33 for the rails, these blocks engaging over the base flanges of the rails at opposite sides thereof for securely holding the rails within the seats 27 of the chair plates. A secure mounting for the rails is thus provided and in this connection, it will be observed that the bar 13 while forming a reinforcing element for the body of the tie also provides an anchoring member for the rail fastenings.

Attention is now directed to the fact that by loosening the nuts 32, the bolts 30 may be rotated to disengage the heads 31 from the bar 13 when the said bolts and attaching blocks 33 may be displaced without the necessity of first removing the rails or molesting the rail chairs. As will be seen, a rail may thus, after the said bolts and attaching blocks have been removed, be easily placed upon or removed from the rail chairs. I thus provide a construction wherein the track may be easily repaired.

Since a vitreous tie of the character herein provided may, in the practical use thereof, shrink to a slight degree, I have accordingly provided an arrangement wherein the rail chairs may be manipulated for adjustably shifting the rails laterally and truing the rails respectively or for properly spacing the rails relative to each other. This result is accomplished by releasing the nuts 32 of the bolts 30 and then properly shifting the chair plates 25 longitudinally upon the bed plates 18, the bolt openings through the chair plates, the bed plates, the cushioning blocks, and the ties being elongated to accommodate a corresponding movement of the bolts 30. In this connection, it will be observed that in order to thus shift the chair plates, it is unnecessary to remove the bolts 30 or to remove the rails 29 and the coacting teeth 24 and 28 of the bed plates and chair plates respectively are, as will be clear, adapted to coact for holding the chair plates

at adjustment. The rails may thus be easily maintained in proper relation upon the tie.

The strips 22, being interposed between the bed plates 18 and the tie, are adapted to cushion the rails and absorb the vibration of rolling stock passing over the rails. Furthermore, these strips while primarily providing cushioning elements also, as previously intimated, provide leveling members for the rails. If, when the tie is laid, the rails are unevenly supported, the said cushioning blocks may be cut away to compensate for such unevenness. Also, it sometimes happens that a tie upon coming from the kiln, will not be formed with a straight flat upper face and as will be apparent, the strips 22 may be cut away or beveled longitudinally into wedge shape to compensate for any variations in the upper surface of the tie so that the rails will be evenly supported.

It will therefore be seen, in view of the preceding description, that I provide a very simple and efficient construction for the purpose set forth and a tie and rail fastener adapted for universal adoption.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a device of the character described, a tie body provided with spaced recesses, a reinforcing member arranged within the tie body, a rail chair mounted upon the tie body, the said chair including a bed plate, lugs carried by the said plate and engaging in said recesses for holding the bed plate against shifting movement upon the tie body, and a leveling element for the bed plate housed therebeneath and engaged by the said lugs for holding the said element in position, and coacting fastening devices coöperating with the bed plate and engaged with the said reinforcing member.

2. In a device of the character described, a tie body, a rail chair mounted upon the tie body, the said chair including a bed plate, a cushioning element arranged beneath the said plate, and means carried by the said plate and extending through the cushioning element to engage the tie body for holding the said plate and cushioning element against displacement with respect to the tie body, and coacting rail fastening devices coöperating with the said plate and cushioning element and operatively engaged with the tie body.

3. In a device of the character described, the combination with a porcelain tie body, of a rail chair mounted thereon and including a chair plate adjustable to compensate for the longitudinal shrinkage of the tie body, and an element interposed between the plate and the tie body for cushioning the said plate upon the tie body with the said element adapted to be cut away for leveling the plate with respect to the tie body, and coacting rail fastening devices coöperating with the said plate and element and operatively engaged with the tie body.

4. In a device of the character described, a tie body provided with a channel, a reinforcing element seating in said channel, a filler sealing the said element within the channel, a rail chair mounted upon the tie body, and a rail fastening device associated with the said chair and engaged with the said reinforcing element.

5. In a device of the character described, a tie body provided upon the lower side thereof with a longitudinally extending channel, a reinforcing element seating in said channel, and a filler incasing the reinforcing element within the channel, a rail chair mounted upon the tie body, and a rail fastening device associated with the said chair and engaged with the said reinforcing element.

6. In a device of the character described, a tie body provided with a channel, a reinforcing element seating said channel, the tie body and said reinforcing element being provided with registering openings, a hood plate disposed within the channel to extend over the opening in said reinforcing element, a filler inclosing the reinforcing element within the said channel, a rail chair mounted upon the tie body, and a rail fastening device associated with said chair and arranged within said registering openings with the inner extremity of the said device received by the said hood plate.

7. In a device of the character described, a tie body provided with a channel, a reinforcing element seated in said channel and provided with an opening, a hood plate formed of a length of material bent to extend over said opening, a filler inclosing the reinforcing element within said channel and overlying said plate, a rail chair mounted upon the tie body, and a rail fastening associated with said chair to extend through the opening in said reinforcing element for engagement therewith with the inner extremity of said fastening received by the said plate.

In testimony whereof I affix my signature.

DANIEL B. FABER. [L. S.]