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W. C. MAYO & J. HOULEHAN.

RAILROAD TIE.

APPLICATION FILED FEB. 16, 1907.

Fig. 1.

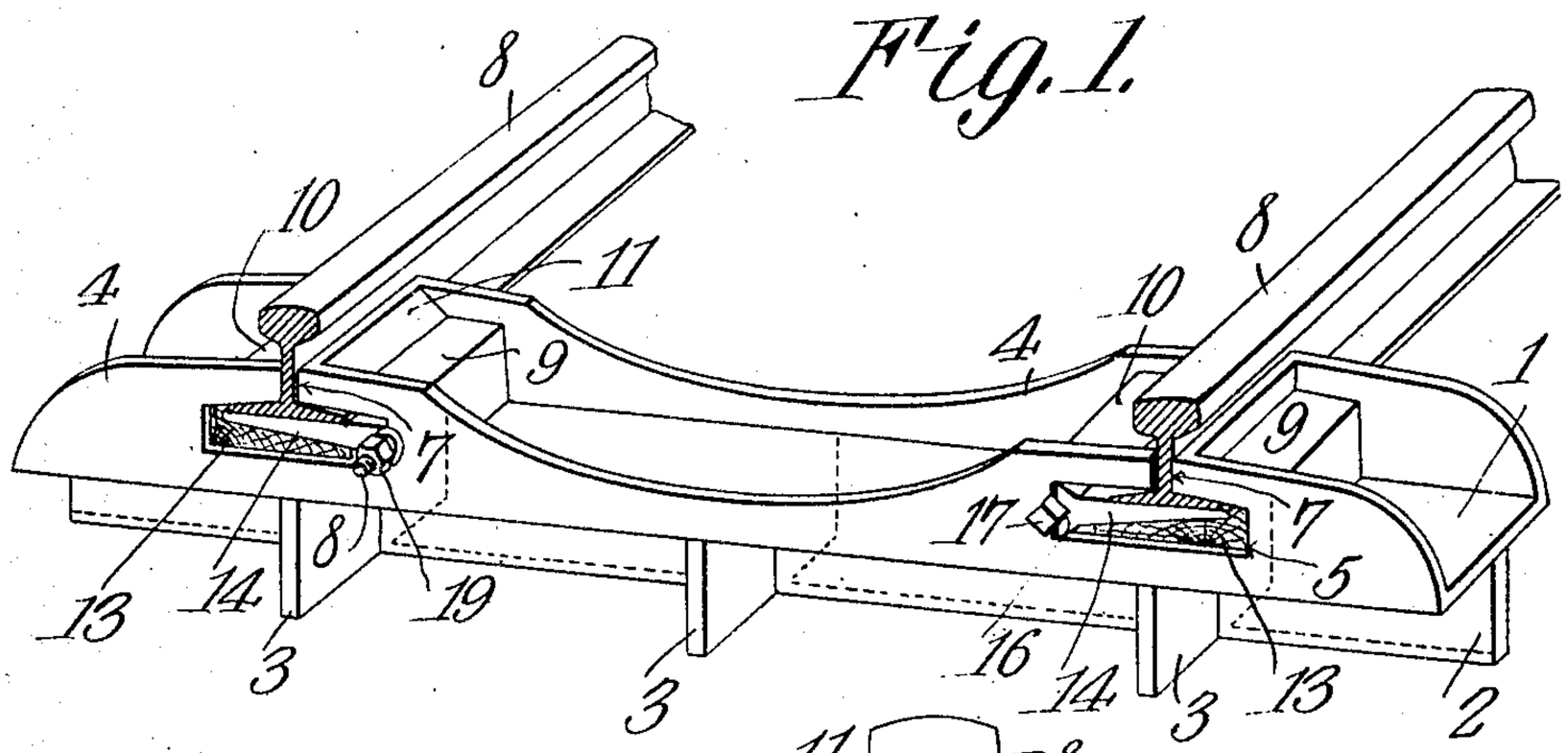
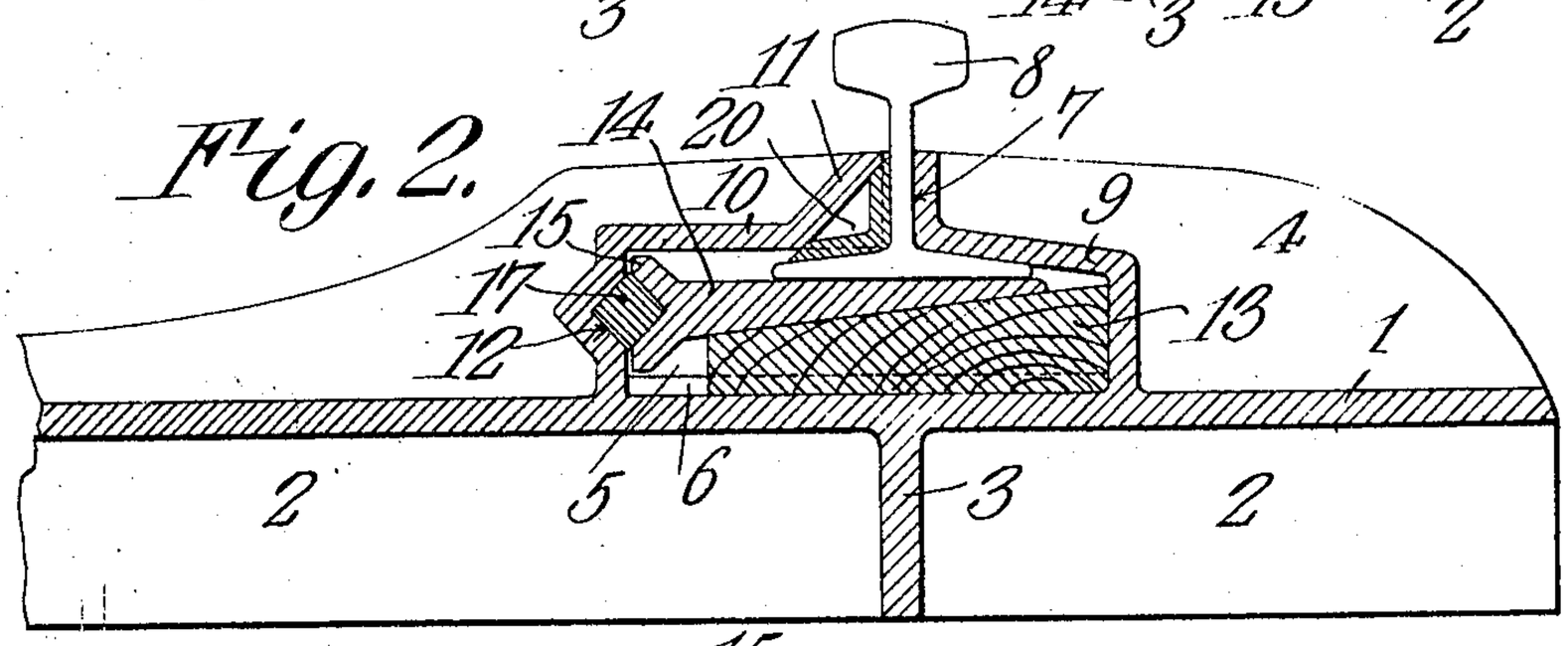


Fig. 2.



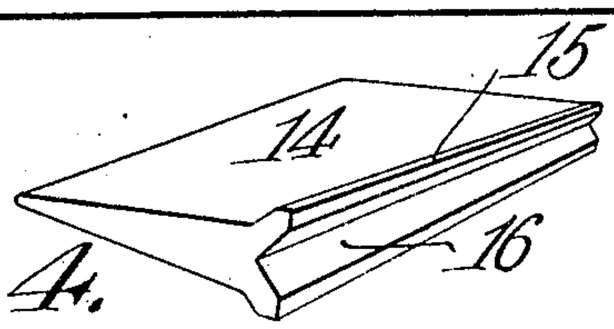


Fig. 4.

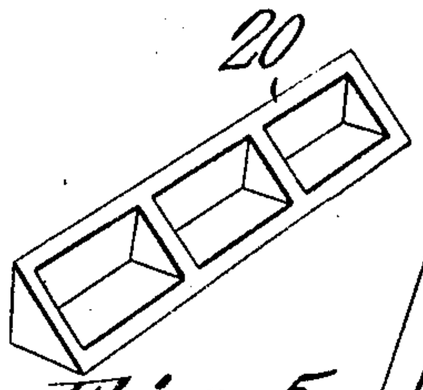


Fig. 5.

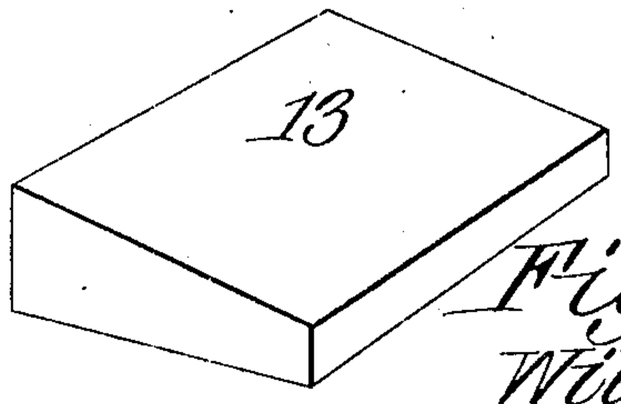


Fig. 3.

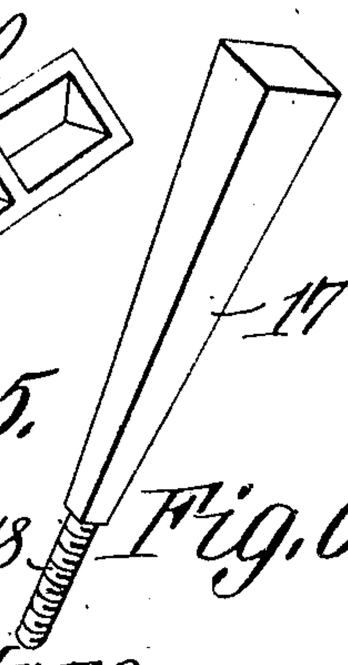


Fig. 6.

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UNITED STATES PATENT OFFICE.

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RAILROAD-TIE.

No. 871,425. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed February 16, 1907. Serial No. 357,678.

To all whom it may concern:

Be it known that we, WILLIAM C. MAYO and JOHN HOULEHAN, citizens of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented a new and useful Railroad-Tie, of which the following is a specification.

This invention relates to railroad ties and its object is to provide a metal tie of simple and durable construction and having means whereby rails can be securely fastened thereto without danger of spreading or becoming detached.

A still further object is to provide cushioning means for the rails, said means being securely held against displacement.

A still further object is to provide a tie having a novel arrangement of webs whereby the same is rendered strong and durable without necessitating the use of a considerable quantity of metal in the production thereof.

Another object is to provide a tie which will firmly engage the road bed so as to be prevented from shifting out of its position after it has once been placed.

A still further object is to provide means whereby the rails can be fastened to the tie without the necessity of extending bolts through them, said rails being held solely by frictional contact with the tie.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a perspective view of a tie and showing the rails secured thereon; Fig. 2 is an enlarged central longitudinal section through one end of the tie; Fig. 3 is a detail view of the cushion; Fig. 4 is a similar view of the vertically adjusting wedge plate; Fig. 5 is a perspective view of the laterally adjusting wedge; and Fig. 6 is a detail view of the securing bolt.

Referring to the figures by characters of reference, 1 is the base of the tie the same being preferably flat and rectangular and having a depending and longitudinal web 2 and laterally extending webs 3, said webs being of sufficient length to prevent displacement of the ties after said webs have been embedded within the road bed. Upstanding from and integral with the base 1 are longitudinally extending side walls 4 and each wall is preferably reduced in height at points between its ends, each enlarged portion of each wall being formed with an elongated opening 5 the lower edge of which is disposed above the base 1 so as to form a guard flange 6. A slot 7 of sufficient width to receive the web of a rail 8 extends into each side wall from the top thereof and opens into the opening 5 adjacent the center of said opening. Connecting the side walls at opposite sides of the slots 7 are cross webs 9 and 10 each of which is angular in cross section as shown in Fig. 2.

The inner surface of the cross web 9 is shaped so as to bear snugly against the web and one of the base flanges of the rail 8. The other web 10, however, has its uppermost portion inclined as shown at 11 so as to form a triangular space between it and the web and base flange of a rail. The lower upstanding portion of this web 10 has an angular groove 12 formed therein and extending transversely of the tie, said groove being of gradually increasing depth toward one end. A cushioning block 13 of wood or other suitable material is adapted to be inserted through either of the alining openings 5 and to rest upon the base between the guard flanges 6. When in this position the webs 9 and 10 will overhang the block. The upper face of the block 13 is inclined and adapted to constitute a support for a tapered plate 14 constituting a wedge and which is also adapted to be inserted through one of the openings 5. When this plate is in proper position on the block 13 its upper surface is disposed in a plane parallel with the base 1. The thick edge of the wedge is enlarged as shown at 15 and provided with an annular groove 16 gradually decreasing in width and depth toward one end and adapted when the plate is in position to register with the groove 12. The two grooves 12 and 16 are adapted to receive a tapered wedge 17 angular in cross section and having a threaded stem 18 at its small end adapted to project beyond and at one side of the tie and receive a nut 19. The base of the rail 8 is adapted to rest on plate 14 and interposed between the base and web of this rail and the inclined portion 11 of web 10 is a wedge block 20 so shaped as to fit snugly within the space formed beneath the inclined portion 11 and adapted when the rail is pushed upward to

ride along the inclined portion 11 and shift the rail laterally against the web 9.

In using the device herein described the wedge block 20 is first inserted through one of the openings 5 and into position beneath the inclined portion 11 of web 10. The cushioning block 13 is then placed between the guard flanges 6 after which the plate 14 is placed in position on the block. The rail to be fastened to the tie is then inserted end first through the side openings 5 and the slots 7 so that its base flanges will assume positions upon the plate 14 and below web 9 and the wedge block 20. After the rail has been properly placed the wedge 17 is inserted within the grooves 12 and 16 and drawn longitudinally therein by means of the nut 19. Wedge 17 will therefore press the plate 14 upward upon the inclined face of block 13 and cause a corresponding upward movement of the rail 8. This will result in pressing the rail against the wedge block 20 and causing said block to ride along the inclined portion 11 of web 10 and clamp the rail against the web 9. Said rail will therefore be securely held by friction and not be removed except by first withdrawing the wedge or bolt 17. It will be seen that by providing a tie and fastenings as herein described it becomes unnecessary to form apertures within the rails as heretofore and the same are held securely against spreading or detachment. The cushioning block 13 if formed of wood may be treated in any suitable manner so as to preserve it against the action of moisture. Should the block become worn a new one can be readily substituted without the necessity of removing the rail 8 simply by withdrawing the plate 14 so as to permit the block 13 to be raised above the lower edges of the openings 5. Said block can then be slipped through the opening and a new one inserted in its place after which plate 14 can be replaced.

If preferred thin plates can be placed under the block 13 should the same wear away thereby greatly prolonging the life of the block as a cushioning medium.

The body of the tie can be made of a cheap grade of metal and in view of the peculiar arrangement of the webs of the tie the same is rendered very strong although utilizing a minimum amount of metal.

Should the nut 19 become detached and the wedge bolt 17 in any wise get out of position within the tie the rail will still remain in such position as to prevent accidents inasmuch as said rail can only be removed by withdrawing it longitudinally from the tie.

It will be noted that the wedge block 20 is rendered very light by casting it in a single piece made up of angularly disposed walls having interposed webs.

What is claimed is:

1. A metal tie comprising a base having integral longitudinally and transversely extending webs depending therefrom, and side walls upstanding from the longitudinal edges of said base, said walls having rail receiving apertures therein.

2. A metal tie comprising a base having integral longitudinally and transversely extending webs depending therefrom, side walls upstanding from the longitudinal edge of said base, said walls having rail receiving apertures therein, and transversely extending angular webs connecting the walls and constituting continuations of the walls of the openings.

3. A metal tie comprising a base having integral longitudinally and transversely extending webs depending therefrom, side walls upstanding from the longitudinal edges of said base, said walls having rail receiving apertures therein, the lower walls of said openings being disposed above the base to form guard flanges, and a cushioning block interposed between said guard flanges and upon the base, said block being insertible through one of said openings.

4. A metal tie comprising a base having integral longitudinally and transversely extending webs depending therefrom, side walls upstanding from the longitudinal edge of said base, said walls having rail receiving apertures therein, transversely extending angular webs connecting the walls and constituting continuations of the walls of the openings, the lower walls of said openings being disposed above the base to form guard flanges, and a cushioning block insertible through one of said openings and beneath the transversely extending webs, said block being retained by the guard flanges.

5. A metal tie comprising a base having integral longitudinally and transversely extending webs depending therefrom, side walls upstanding from the longitudinal edge of said base, said walls having rail receiving apertures therein, transversely extending angular webs connecting the walls and constituting continuations of the walls of the openings, one of said transversely extending webs having an inclined portion, a rail engaging wedge insertible through one of the openings and beneath the inclined portion, and means for exerting an upward pressure upon a rail within the openings to force said wedge against the inclined portion.

6. A tie comprising a base having upstanding side walls formed with rail receiving openings, connecting webs interposed between the side walls and disposed partly around the openings, one of said webs having an inclined portion, a wedge block insertible between said inclined portion and a rail, and means insertible beneath a rail for forcing said wedge against the inclined portion to clamp a rail.

7. A tie comprising a base having upstand-

ing side walls formed with rail receiving openings, cross webs connecting the side walls and disposed at opposite sides of the openings, a cushioning block beneath said webs and upon the base, a vertically adjusting wedge movably mounted upon said block, and a laterally adjusting wedge disposed beneath one of the webs and coöperating therewith to exert a lateral pressure upon a rail when raised.

8. A tie comprising a base having side walls formed with rail receiving openings, connecting webs upon the base and between the walls, said webs being disposed at opposite sides of the openings, and one of the webs having an inclined portion, a cushioning device beneath the webs and insertible through one of said openings, a vertically adjusting wedge upon said device, and a laterally adjusting wedge beneath and coöperating with the inclined portion of one of the webs, said last mentioned wedge adapted when a rail within the tie is raised to coöperate with said inclined portion and press laterally upon said rail.

9. A tie comprising a base having side walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs connecting the walls at opposite sides of the openings, a cushioning block interposed between the base and webs and between the guard flanges, said block being insertible through one of the openings, a wedge plate bearing upon the block and adapted to support a rail within the openings and between the webs, and means for forcing said plate between the block and a rail upon the plate.

10. A tie comprising a base having side walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs connecting the walls at opposite sides of the openings, a cushioning block interposed between the base and webs and between the guard flanges, said block being insertible through one of the openings, a wedge plate bearing upon the block and adapted to support a rail within the openings and between the webs, a tapered bolt interposed between one end of said plate and one of the webs, means for drawing said bolt longitudinally to force the plate between the block and a rail supported by the plate, said means adapted to hold the bolt against displacement.

12. A rail comprising a base having walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs connecting the walls at opposite sides of the openings, one of said webs having an upper inclined portion, a wedge block insertible through one of the openings and below and against said inclined portions, said block adapted to be supported by a rail, a cushioning block insertible through one of the openings and between the flanges, and a rail supporting wedge disposed upon the block.

13. A rail comprising a base having walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs connecting the walls at opposite sides of the openings, one of said webs having an upper inclined portion, a wedge block insertible through one of the openings and below and against said inclined portion, said block adapted to be supported by a rail, a cushioning block insertible through one of the openings and between the flanges, a rail supporting wedge disposed upon the block, and means movable between the webs for forcing said rail supporting wedge between the block and rail to press the wedge block against the inclined portion of the web.

14. A tie comprising a base having upstanding walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs at opposite sides of the openings and connecting the walls, one of said webs having a grooved portion, a cushioning block insertible through one of the openings and between the guard flanges, a rail supporting wedge movably mounted on the cushioning block and having a grooved end, and a longitudinally movable wedge bolt seated within said grooves, and movable transversely of the tie to adjust the rail supporting wedge.

15. A tie comprising a base having upstanding walls formed with rail receiving openings, the lower walls of said openings being disposed above the base to form guard flanges, webs at opposite sides of the openings and connecting the walls, one of said webs having an upper inclined portion and a grooved portion, a rail clamping wedge contacting with the inclined portion and adapted to be supported by a rail, a cushioning block insertible through one of the openings and disposed between the guard flanges, a

rail supporting wedge upon said block and having a grooved edge, and a longitudinally movable wedge bolt seated within the grooves and movable transversely of the tie.

16. A metal tie comprising a base, and walls upstanding therefrom and having rail receiving apertures therein, and a cushioning device insertible through the apertures and interposed between the walls and upon the base for supporting a rail within the openings.

17. A metal tie comprising a base having walls extending therefrom and formed with rail receiving openings, and means insertible through the openings for securing a rail against movement within the openings.

18. A metal tie comprising a base having upstanding walls formed with rail receiving openings, a cushioning device insertible through the openings and disposed to be retained by the walls, and means disposed above said device for holding a rail against lateral movement.

19. A metallic tie comprising a base having walls extending therefrom formed with rail receiving openings, cushioning means insertible through the openings, and a combined rail supporting and binding device insertible through said openings and between the rail and cushioning means.

20. A metallic tie comprising a base having walls extending therefrom and formed with rail receiving openings, cushioning means insertible through the openings, a combined wedging and supporting device insertible through the openings and between the cushioning means and the rail thereabove, and means insertible through the openings for securing said wedging device against displacement.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

WILLIAM C. MAYO.
JOHN HOULEHAN.

Witnesses as to William C. Mayo:
CLIFFORD M. TAPPEN,
M. L. DUNHAM.
Witnesses as to signature of John Houlehan:
A. M. WALTHAM,
HARRIS WALTHAM.