No. 784,493. PATENTED MAR. 7, 1905.

L. E. KELLER.

INTERCHANGEABLE RAILROAD CROSSING FROG.

APPLICATION FILED OCT. 20, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

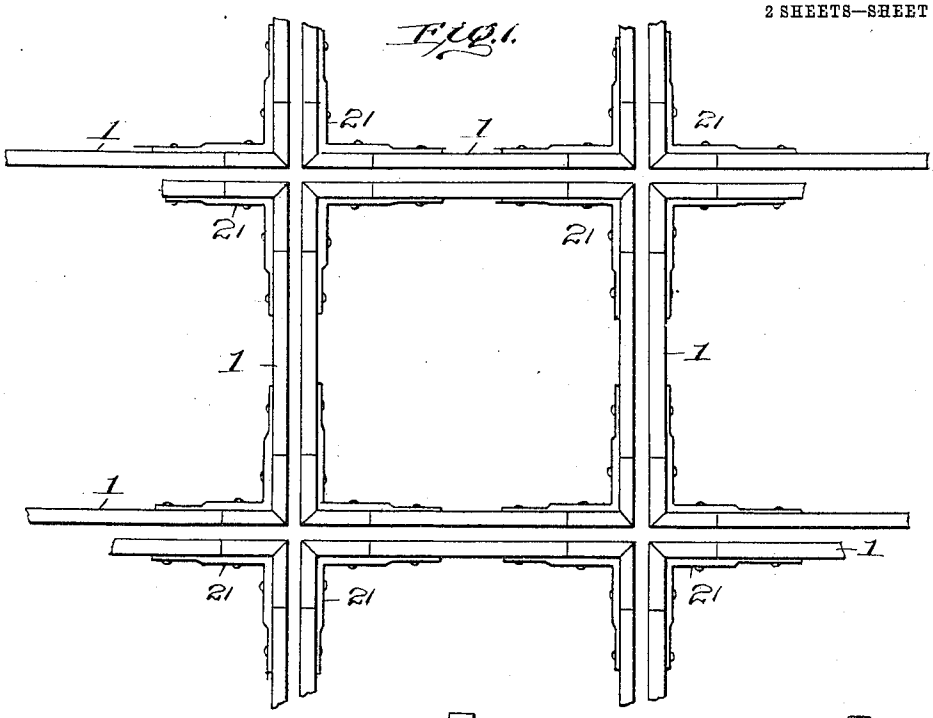


Fig. 2.

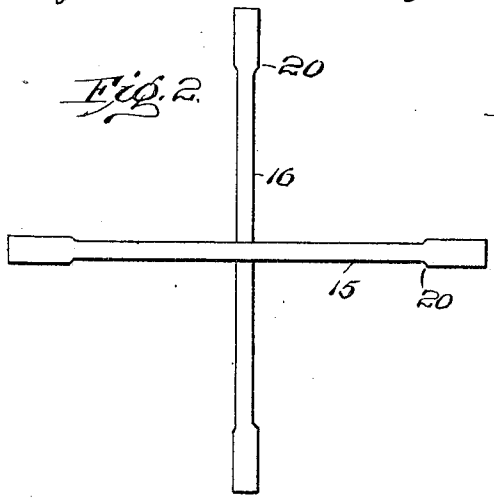


Fig. 3.

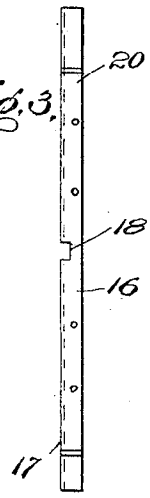
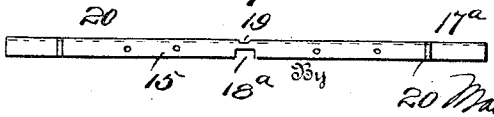


Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 6.

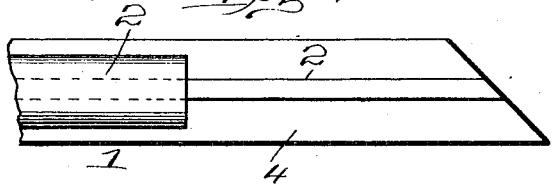


Fig. 8.

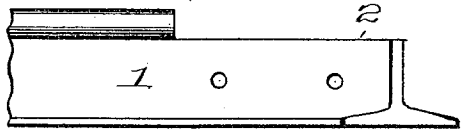


Fig. 10.

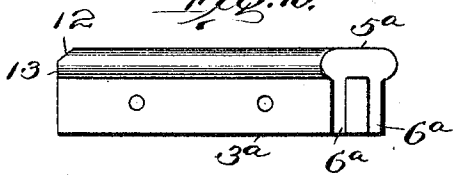


Fig. 9.

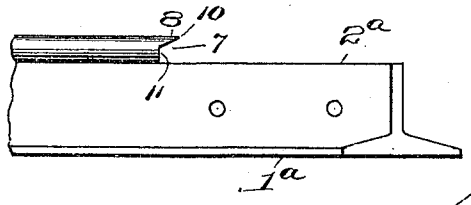


Fig. 5.

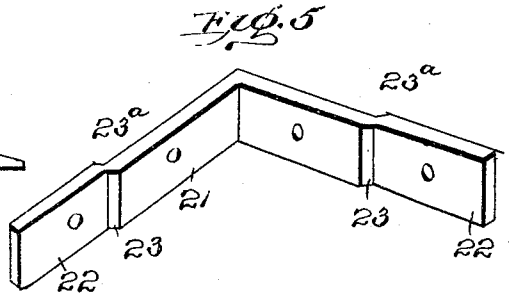
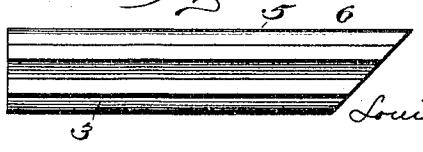


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUIS E. KELLER, OF OIL CITY, PENNSYLVANIA.

INTERCHANGEABLE RAILROAD-CROSSING FROG.

SPECIFICATION forming part of Letters Patent No. 784,493, dated March 7, 1905.

Application filed October 20, 1904. Serial No. 229,295.

To all whom it may concern:

Be it known that I, LOUIS E. KELLER, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Interchangeable Railroad-Crossing Frogs; 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.

This invention relates to improvements in interchangeable railroad-crossing frogs.

The object of the present invention is the provision of removable interchangeable means, which is constructed of durable material, positioned upon the meeting ends of the rails which are employed in the construction of railroad-crossing frogs.

Another object of the invention is the provision of means for reinforcing a rail which is employed in the construction of a crossing-frog whereby the strength and stability at the hammering-point is greatly increased.

A still further object of the invention is the provision of interchangeable means which is to be positioned upon the web of a rail employed in the construction of a frog, said means greatly increasing the strength of the rail, as well as obviating any undesirable results which may be produced by the positioning of a separable member upon an ordinary rail.

Among other objects in view I contemplate improving the construction of a frog which is provided with a plurality of removable members positioned upon the rails at the crossing-point, and secured to the rails and the removable members of the frog is a center block which can be made at any angle for strengthening the structure.

With these and other objects in view the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the claims hereto appended.

In the drawings, Figure 1 is a plan view of a crossing-frog constructed in accordance with the present invention. Fig. 2 is a plan view of a center block employed in the construction of my improved crossing-frog. Figs. 3 and 4 are views in side elevation of the bars or members employed in the construction of the center block depicted in Fig. 2. Fig. 5 is a perspective view of an angle-plate which is employed for fastening and binding the rails together. Fig. 6 is a fragmentary plan view of the end structure of a rail which is employed in constructing a crossing-frog depicted in Fig. 1. Fig. 7 is an inverted plan view of an interchangeable shoe which is adapted to be positioned upon the structure depicated in Fig. 6. Fig. 8 is a view in side elevation of the structure depicted in Fig. 6. Fig. 9 is a view in side elevation of another embodiment of the present invention. Fig. 10 is a view in side elevation of a shoe which is adapted to be positioned upon the rail depicted in Fig. 9.

In carrying out the present invention the crossing-frog comprises in its construction a plurality of rails which are secured together, as hereinafter specified, said rails being peculiarly constructed, whereby the meeting ends of the rails of the crossing-tracks are so cut as to permit of the positioning of peculiarly-constructed shoes thereon for forming a connection with the rails permitting of the passage of the wheels of the trucks of the cars over the same, obviating to a considerable degree the ordinary undesirable pounding of the wheels upon the crossing-rails of a frog.

Referring to the drawings by reference-numerals, 1 designates the rails which are employed in the construction of the crossing-frog. The tread of the rails 1 is cut transversely, as illustrated in Fig. 6, and the entire tread removed from the cut portion to one end of the rail. The removal of the tread from the web 2 permits of an interchangeable shoe 3 to be positioned thereon. The meeting edges 4 of the rails 1 are preferably cut at an oblique angle for permitting of the rails of a crossing-track to be assembled at right angles, although it will be obvious that the outer ends of the rails may be cut at different angles, necessitated by the angle at which the crossing-tracks of the frogs are to be positioned. The construction of the interchange-

able shoes 3, which are to be positioned upon the rails 1, is similar, and for this reason I will only describe the construction of one. The interchangeable shoe 3 comprises in its construction a tread portion 5, which corresponds in construction to the tread portion of the rails 1. The shoe 3 is provided with parallel integral flanged portions or webs 6 6, which are approximately the same width of the web 2 of rails 1. The webs or extensions 6 6 of the interchangeable shoe are provided with apertures, which register with similarly-constructed apertures formed upon the web 2 of the rails for the purpose of permitting of the passage of bolts therethrough for retaining the shoes in an assembled position with the rails. One end of the shoe 3 is cut at right angles, so that it will fit snugly against the similarly-cut portion of the web of rail 1, while its opposite end is cut at an oblique angle for permitting of said end to lie in the same vertical plane in which the end portion 4 of the rails is formed. The shoes 3 can be easily removed, thereby permitting of the positioning upon the rails of new shoes when it is found necessary by reason of the destruction of any or all of the shoes or of the shoe becoming worn sufficiently to prevent of the wheels of the trucks passing over the same without undesirable results.

Referring to the embodiment depicted in Figs. 9 and 10, the rail 1^a is provided with a web 2^a, which is similarly cut at its outer end to meet the necessary requirements involved upon the constructor in the manufacture of crossing-tracks of a particular frog. The tread in this embodiment is provided with cut-out portion 7, which extends transversely of the rail, formed by an integral lip or extension 8, projecting longitudinally from the tread of the rail. The extension 8 is beveled upon its under surface 10, terminating in a right-angled wall 11. The interchangeable shoe 3^a, which is adapted to be positioned upon the rail structure depicted in Fig. 9, is provided with a tread 5^a, to which is integrally secured the webs or parallel extensions 6^a 6^a, said tread 5^a being provided with a beveled portion 12, which extends transversely across one end of said tread, and also with an engaging surface 13, which is adapted to bear against corresponding surface 11 of the rail 1^a when the interchangeable shoe 3^a is in its normal position thereon. The rail and its shoe are provided with apertures for the reception of means for retaining the same in their normal assembled positions. The outer end of the rail 1^a and its shoe 3^a are cut at such an angle as is necessitated for permitting of the assembling of the engaging rail of the crossing-track. At each of the corners or crossing-point structures 14 of a frog there is secured a center block as well as the angle-plates. The center block comprises in its construction crossed bars or members 15 and 16. The bar 16 is provided with a longitudinal recessed portion 17, within which the flange of the wheels pass while traveling over the tread of the rails. The member 16 is also provided with apertures for the reception of means for securing the center block to the rails, which are provided with interchangeable shoes. The bar 16 is provided with a transverse notch 18 upon its upper surface, said notch being provided for permitting of the positioning of bar or member 15 thereon. Bar or member 15 is provided with a similarly-constructed notch 18^a, formed upon its under or base surface. A transverse groove 19 is formed upon bar 15, said groove corresponding in depth to the groove or channeled portion 17 of bar 16, so that when the members 15 and 16 are in an assembled position and the center block is secured to the rails the flanges of the wheels of a truck are permitted to pass over the assembled members of the center block without injury thereto. Formed upon bar or member 15 is a longitudinal channel or grooved portion 17^a, constructed for the same reasons as the similar portion of the bar or member 16. Each of the bars 15 and 16 of the center block is provided at 20 with a beveled side formed upon an enlarged end portion. The purpose of beveling the side of the bars is to reduce the width of the central portion of each bar, so that when the center blocks are positioned upon the rails at the crossing-points one of the beveled portions 20 of each of the members of the center blocks will come in engagement with the outer end of one of the webs of each of the interchangeable shoes. It will be obvious from the foregoing description that the center block is positioned against the inner sides of the interchangeable shoes and the rails which are employed in the construction of a crossing-frog, while upon referring to Fig. 1 it will be apparent that angle-plates 21 are secured upon the outer sides of the rails and the interchangeable shoes. The angle-plates are similarly constructed, and it will only be necessary to describe the construction of one. A right-angled bar or plate 21 is employed, which is provided with a plurality of apertures adapted to register with similarly-constructed apertures formed near the end of the rails and upon the interchangeable shoes. The outer end portions 22 22 of each of the angle-plates 21 are formed in a different vertical plane from that in which the longitudinal body portion of the angle-plate 21 is constructed. By this construction there is formed beveled or shouldered portions 23 upon one side of the angle-plate 21, and upon diametrically the opposite side of said plate there is also formed similarly-constructed portions 23^a. The peculiar construction of the angle-plates permits of the same to be positioned upon the rails of the crossing-frog so that each of the outer ends 22 are in engagement with the web of a rail, while the intermediate

portion of the angle-plate is bearing against the outer side of one of the webs or extensions of the interchangeable shoes. Bolts of sufficient length are passed through the registering apertures of the web portion of the rails, removable shoes, angle-plates, and the center blocks for the purpose of securing all of said members in a rigid assembled position. The assembling of the members just enumerated produces a crossing-frog of durable and efficient construction. The angle-plates 21, as well as the center blocks, can be easily formed at such an angle as would permit of the same being assembled with the crossing-rails of a frog constructed in accordance with the present invention. It will be obvious that if the tracks are crossing at oblique angles the angle of the center block, as well as the angle-plate, would necessarily be different from that depicted in the drawings, as such members are shown as being formed at right angles. However, as this is merely a deviation from the angle in which the members are to be formed and not a departure from the peculiar construction of said members which distinguishes this crossing-frog from the ordinary structure it is entirely optional with the constructor to form the parts at such an angle as found necessary in any particular case.

While I have described in the foregoing description and depicted in the accompanying drawings the preferred construction of my invention, it will be obvious to one versed in the art to which this invention relates that certain alterations, modifications, and changes may be made, and I therefore reserve the right to make such alterations, modifications, and changes as shall fairly fall within the spirit and scope of the present invention.

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

1. A shoe of the class described, comprising a tread portion, parallel, integral webs extending therefrom, and said shoe having one of its ends cut at right angles to the body portion thereof and its opposite end cut at an oblique angle.

2. A shoe of the class described, comprising a tread portion, integral extensions projecting from said tread portion in the same direction, and said tread portion provided with a beveled end.

3. A shoe, comprising a tread portion, a pair of extensions having apertures projecting from said tread portion, said shoe having one end cut at right angles and the opposite end at an oblique angle, and a beveled portion formed upon the end of the tread cut at right angles.

4. A railroad-crossing frog of the class described, comprising four crossing-points, each crossing-point comprising a series of pairs of engaging rails, removable tread means positioned upon the rails of each pair, a center block secured to said rails of each point, and an angle-plate secured to each pair of rails.

5. In a device of the character described, the combination with crossing-tracks, of crossing-point structures, each crossing-point structure comprising a series of pairs of engaging rails, each rail having a portion of its tread removed, and a removable shoe positioned thereon.

6. In a device of the character described, the combination with crossing-tracks, of crossing-point structures, each crossing-point structure comprising a series of pairs of engaging rails, each rail having a portion of its tread removed, a removable shoe positioned upon the web of each rail, and means connecting all the pairs of rails together.

7. In a device of the character described, the combination of crossing-tracks provided with crossing-point structures, each point structure comprising a plurality of angled rail structures, said rail structures comprising a base portion, removable shoes positioned upon said base portion, an angle-plate secured to each of the rail structures, and means connecting all of the rail structures of each point structure.

8. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, each point structure comprising angled track structures, said track structures comprising engaging rails having their tread removed therefrom, a removable shoe positioned upon the web of the tread-removed portion of each rail, an angle-plate secured to each track structure, and a sectional center block secured to the rail structure of each point structure.

9. In a device of the character described, the combination of a plurality of crossing-tracks provided with crossing-point structures, each point structure comprising a plurality of parallel engaging rails, the rails in each pair secured at angles to each other, removable shoes positioned upon each pair of rails, a center block connecting the pairs of rails in each point structure, comprising detachable bars, one bar having a transverse notch formed upon its upper surface and a longitudinal channel extending throughout its entire length, and the other bar of the block having a transverse notch formed upon its under surface and a longitudinal channel extending the entire length thereof.

10. In a device of the character described, the combination of a plurality of crossing-tracks having crossing-point structures, each crossing-point structure comprising a plurality of angled track structures, each track structure comprising engaging rails, removable means positioned upon the web of the rails, a center block connecting the track structures, an angle-plate secured to each track structure, comprising an angled bar

having end portions formed in different vertical planes from that in which the longitudinal nal central portion of the angle-plate is formed.

11. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, each crossing-point structure comprising assembled track structures, said track structures comprising a pair of rails having their engaging ends cut at an oblique angle and a portion of their tread removed therefrom, a removable shoe positioned upon the web, and engaging the tread of the track, said shoe comprising a tread portion having parallel webs, said shoe having one end cut at an oblique angle, and means for connecting the track structures of each point structure.

12. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, said crossing-point structures comprising connected angled track structures, said track structures comprising engaging rails, each rail having a portion of its tread removed and a transverse recess formed therein, a removable shoe positioned upon the web of the rail having its tread removed, said shoe comprising a tread portion having a beveled end and a plurality of parallel webs secured to said tread of the shoe.

13. In a device of the character described, the combination of tracks, said tracks provided with crossing-point structures, each crossing-point structure comprising engaging rails, said rails provided with removable shoes, and means connecting all of the rails in each point structure.

14. In a device of the character described, the combination of crossing-tracks, said tracks provided with crossing-point structures, each point structure comprising pairs of engaging rails, the rails in each pair having a portion of their tread removed, an integral extension projecting from the tread of each rail forming a recess, removable shoes adapted to be positioned upon the webs of the rails, each shoe comprising a tread portion provided with webs and having one end of its tread portion beveled, the beveled end of the tread of the shoe adapted to be positioned within the recess formed by the extension of the tread of the rail, a sectional center block secured to and connecting the pairs of rails of the point structure, the sections of said block having grooves extending the entire length thereof, and angle-plates secured to each pair of rails of the point structures, comprising an angular body portion having ends formed in different vertical planes from that in which the longitudinal portion is constructed.

15. The combination with tracks, of crossing-point structures connecting said tracks, each of said crossing-point structures comprising interchangeable shoes, a center block, and fastening and binding means assembled with said shoes and center block.

16. The combination with tracks, of crossing-point structures connecting said tracks, each crossing-point structure comprising removable shoes and reinforcing means positioned upon each side of said shoes and secured to the tracks.

17. A railroad-crossing frog, comprising crossing-tracks, a removable member comprising a tread portion and parallel, depending sides positioned upon each rail of said tracks, and fastening and binding means secured to the rails and removable members.

18. The combination with crossing-tracks, of pairs of adjoining removable members provided with tread portions positioned at an angle to each other upon the rails of said tracks.

19. In a device of the character described, the combination with crossing-tracks, of adjoining removable, angular tread portions provided with depending sides positioned upon the engaging ends of the rails of the track.

20. In combination, with tracks, of crossing-point structures connecting said tracks, each point structure comprising removable and interchangeable tread portions, and binding and fastening members secured to the sides of said tread portions and the rails.

21. The combination with crossing-tracks, of shoes positioned upon the adjoining ends of the rails, each of said shoes provided with an end formed at right angles to the body portion and the opposite end formed at an oblique angle to the same.

22. A shoe, comprising a body portion provided with ends formed at different angles thereto, and one end formed differently from the other end.

23. The combination with crossing-tracks, of removable tread members positioned upon the engaging ends of the rails of the tracks, each of said tread members provided with ends formed at different angles to the body portion, and binding and fastening means secured to the shoes and rails.

24. In a mechanism of the class described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising a center block, removable tread means positioned upon each point structure, and means for connecting said removable tread means and the center block.

25. In a device of the character described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising a center block, removable tread members assembled with said block, and fastening and binding means positioned upon the outside of said tread members.

26. In a mechanism of the class described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising removable tread means,

a center block assembled with said tread means, said center block comprising a plurality of members, and angular members assembled with said tread means and center block.

27. A railroad-crossing frog comprising a pair of crossing-tracks, said tracks provided with point structures, each of said point structures comprising a plurality of pairs of engaging shoes, a center block interposed between said pairs of shoes, and means for securing said shoes and center block in an assembled position.

28. In a mechanism of the class described, the combination with a pair of crossing-tracks, of a removable structure connecting said tracks at each crossing-point, said structure comprising interchangeable shoes, and a center block connecting part of said shoes.

29. The combination with a plurality of pairs of engaging rails, of removable, parallel shoes positioned upon the adjoining ends of said rails, and connecting means interposed between the parallel shoes.

30. A series of parallel pairs of rails, each pair of rails provided with removable, tread members, said members engaging similarly-constructed members positioned upon a rail or rails, removable members interposed between the tread members of each pair of rails, and binding and fastening means connecting said tread and removable members.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

LOUIS E. KELLER.

Witnesses:
WM. J. PLACE,
JOHN M. MCGILL.