

C. W. REINOEHL & W. M. HENDERSON.

RAILROAD FROG.

APPLICATION FILED NOV. 24, 1909.

963,325.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

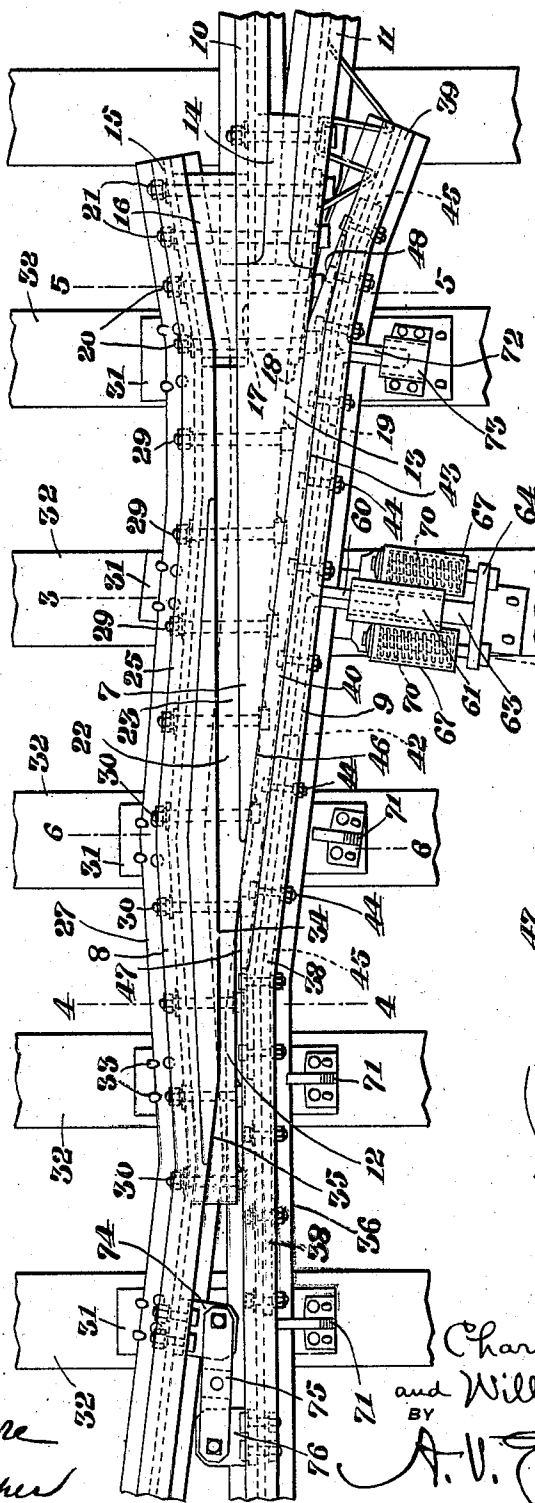
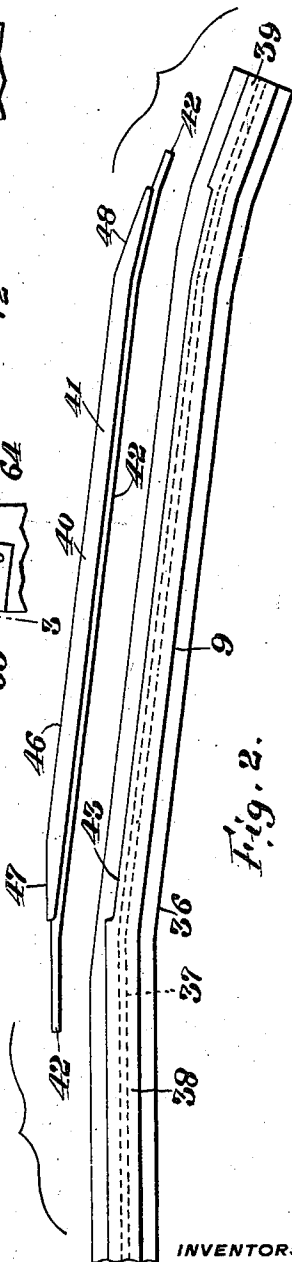


Fig. 2.



WITNESSES

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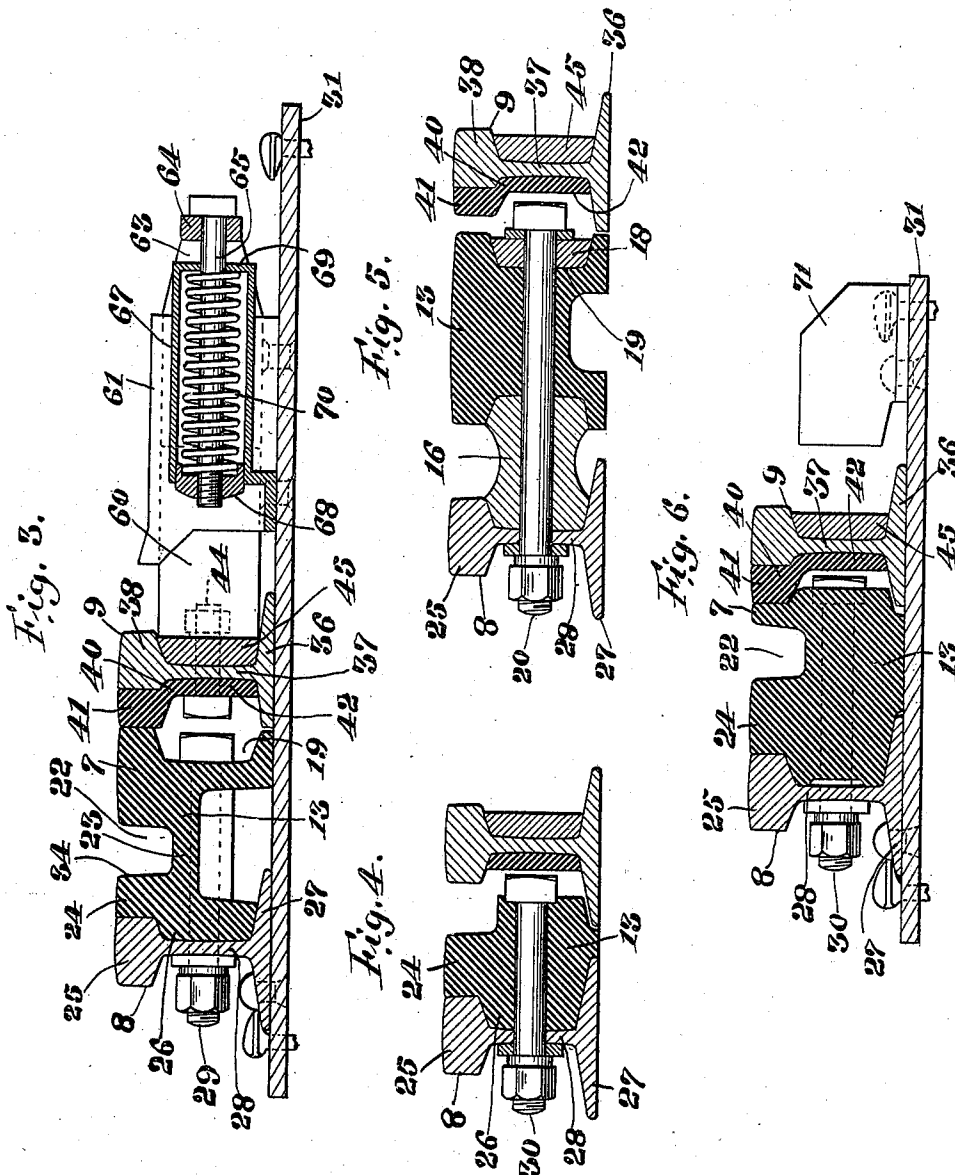
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UNITED STATES PATENT OFFICE.

CHARLES W. REINOEHL AND WILLIAM M. HENDERSON, OF STEELTON, PENNSYLVANIA.

RAILROAD-FROG.

963,325.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed November 24, 1909. Serial No. 529,698.

To all whom it may concern:

Be it known that we, CHARLES W. REINOEHL and WILLIAM M. HENDERSON, citizens of the United States, residing at Steelton, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Frogs, of which the following is a specification.

The object of our invention is to provide a movable wing-rail railroad frog of novel, simple and efficient construction, having provision whereby the parts of the frog may withstand the great wear and strain to which they are subjected; and, with this object in view, the invention consists in the novel construction and combinations of parts which we shall hereinafter fully describe and particularly claim.

In the drawings:—Figure 1 is a plan view of our improved railroad frog. Fig. 2 is a plan view of the two main parts of the movable wing-rail slightly separated from each other. Fig. 3 is a vertical section, on line 3—3 of Fig. 1. Fig. 4 is a vertical section, on line 4—4 of Fig. 1. Fig. 5 is a vertical section, on line 5—5 of Fig. 1. Fig. 6 is a vertical section, on line 6—6 of Fig. 1.

7 designates the point portion of the frog, 8 and 9 the laterally-disposed wing-rails, and 10 and 11 the point rails which diverge from the point portion 7, the head of the rail 10 forming in effect a continuation of one side wall of the point portion 7 and the head of the rail 11 forming in effect a continuation of the other side wall of the point portion 7, and the frog throat 12 being formed between the wing rails 8 and 9 in advance of the frog point. The point portion 7 forms a part of a hard metal casting 13 which is provided with a rearward extension or heel portion 14 between the ends of the point rails 10 and 11 and against which the inner faces of the point rails are fitted. The end 15 of the wing rail 8 is flared outwardly, as shown, and interposed between the flaring end 15 and the adjacent portions of the casting 13 and point rail 10 is a flare block 16 which extends into the fishing spaces in the rails 8 and 10 and also into a short groove 17 in the casting 13, the groove 17 forming a continuation of the fishing space in the point rail 10. The flare block 16 extends on each side of the union line between the point portion 7 and the rail 10 and maintains the flaring end 15 of the wing rail 8 in spaced relation to the point

portion 7 and rail 10. On the other side of the casting 13 to that occupied by the flare block 16 is a fish plate 18 which extends on each side of the union line between the point portion 7 and rail 11 and is arranged within the fishing space of the rail 11 and in a groove 19 in the casting 13, the groove 19 forming a continuation of the fishing space in the rail 11. The casting 13, point rails 10 and 11, wing rail 8, flare block 16 and fish plate 18 are secured together by transverse bolts 20 extending through the casting 13, the flare block 16, the rail 8 and the fish plate 18; and by transverse bolts 21 extending through the heel portion 14 of the casting 13, the rails 8, 10 and 11, the flare block 16 and the fish plate 18.

Formed between the point portion 7 and the wing rail 8 is a wheel-flangeway 22; and the hard metal casting 13 includes a floor portion 23 for the flangeway 22, a tread portion 24 which forms in effect an extension of the head 25 of the wing rail 8 and a longitudinal rib 26. The groove 19 in the casting 13 extends from the fish plate 18 some distance in advance thereof toward the point end of the point portion 7; and the rib 26 is formed on the side of the casting 13 opposite to the side in which the groove 19 is formed, as shown. The rib 26 extends between and is fitted to the head 25 and base 27 of the wing rail 8, and the rib 26 is also fitted against the web 28 of the wing rail 8, thereby maintaining the wing rail 8 in proper position with respect to the point portion 7 of the frog. The hard metal casting 13 and the wing rail 8 are secured together by transverse bolts 29 and 30 extending therethrough, the bolts 29 having heads arranged within the groove 19 in the casting 13 beneath the tread of the point portion 7. The wing rails 8 and 9 and the hard metal casting 13 rest upon tie plates 31 which are supported upon underlying cross-ties 32; and the wing rail 8 and therewith the hard metal casting 13 are firmly held in fixed position by spikes 33 driven into the ties 32 and through holes in the plates 31 and also by other spikes driven into ties and engaging the rails 8, 10 and 11 in the railroad line beyond the broken portions of the rails shown in the drawings. The tread portion 24 of the casting 13 is provided with a face 34 arranged parallel to one side wall of the point portion 7 and forming a side wall of the flangeway 22, and the tread portion

24 is also provided with a face 35 which is alined with the other side wall of the point portion 7 and forms a continuation of the face 34. From this construction it will be seen that car wheels in crossing the flange-way 22 in either direction will pass from one to the other of the two hard metal tread parts 7 and 24. The wing rail 9 is movable upon the tie plates 31 toward and from the frog point 7; and this movable wing rail 9 includes in its construction a base 36, a vertical web 37 and a head 38. The end 39 of the wing rail 9 is flared outwardly, as shown, for the purpose of receiving car wheel flanges between it and the point portion 7 and adjacent point rail 11.

Interposed between the movable wing rail 9 and the point portion 7 is a hard metal wear piece 40 comprising a head 41 and a vertical web 42. The head 41 of the wear piece is fitted within a recess 43 formed by cutting away a portion of the inner side of the head 38 of the wing rail 9, the heads 38 and 41 forming in effect continuations of each other. The web 42 of the wear piece is fitted against the inner face of the web 37 of the wing rail 9 and the ends of the web 42 extend beyond the ends of the head 41. The hard metal wear piece 40 is secured to the movable wing rail 9 by suitable bolts 44 extending through the web 42 of the wear piece 40 and the web 37 of the wing rail 9 and also through a reinforcing strap 45 fitted against the outer face of the web 37 of the wing rail 9 and secured thereto by the bolts 44. Normally, or when the movable wing rail 9 is in the closed position, as shown, the head 41 of the wear piece 40 rests against the adjacent side of the point portion 7. The wear piece 40 extends some distance in advance of the point end of the point portion 7 toward the frog throat 12, and that portion of the head 41 of the wear piece which is engaged with the point portion 7 adjacent the point end thereof and extended toward the frog throat 12 forms a tread portion or a continuation of the hard metal point portion 7 to receive car-wheels as they pass from the point portion 7 to the wear piece 40 and the converse. The head 41 of the wear piece 40 has a face 46 which is arranged parallel to and fits against the point portion 7, and extending from the face and flared outwardly with respect thereto are end faces 47 and 48. The face 47 is alined with the side wall of the point portion 7 opposite to the side engaged by the face 46, and the face 48 is alined with the inner side wall of the head of the outwardly flaring end 39 of the wing rail 9.

The movable wing rail 9 is pressed toward the point portion 7 and the head 41 of the wear piece 40 maintained yieldingly in engagement therewith, by the following means:—The strap 45 secured to the rail 9

is bent outwardly and forms a projecting arm 60 which extends into a housing 61 formed on a casting 62 which is secured to the underlying tie plate 31. The outer end of the arm 60 is engaged by the inner end of an arm 63 which is adapted to slide within the housing 61 and the outer end of which carries a transverse bar 64. Secured to the transverse bar 64 are parallel rods 65 which project from the bar 64 and into and through cylindrical portions 67 formed on the casting 62. The inner ends of the rods 65 are provided with heads 68 between which and outer end heads 69 formed on the cylindrical portions 67 are springs 70 which encircle the rods 65 and bear against the heads 68 and 69 and force the rods 65, bar 64 and arm 63 inwardly toward the rail 9 thereby forcing the arm 60 and rail 9 toward the point portion 7 and yieldingly maintaining the movable wing rail 9 in the closed position with its wear piece 40 in engagement with the point portion 7 from which the rail 9 may be moved against the action of the springs 70. Suitable brackets 71 are provided to limit the movement of the wing rail 9 away from the point portion 7, the brackets 71 being secured to the underlying tie plates 31 as shown.

In order to prevent the free end of the movable wing rail from tilting upwardly as car wheels pass over the body of the rail, the rail 9 is provided with an arm 72 which extends into an opening in a bracket 73 which is secured to the underlying tie plate 31. The arm 72 is formed by bending a portion of the strap 45 outwardly, as shown; and this arm 72 is adapted to engage the bracket 73 to prevent the tilting of the free end of the rail 9, and the arm 72 is also adapted to move within the opening in the bracket 73 as the wing rail 9 is moved toward and from the point portion 7.

To prevent longitudinal displacement or creeping of the movable wing rail 9 we provide the following means:—Bolted to the rail 8 is a bracket 74, and pivoted to the bracket 74 is one end of an arm 75 the other end of which is pivoted to a bracket 76 which is bolted to the movable wing rail 9. This construction permits the lateral movement of the wing rail 9 and effectually prevents longitudinal creeping thereof.

By constructing a frog as herein shown and described, it will be seen that when a car wheel passes over the frog from the rail 8 to the rail 11 the wheel flange will engage the outwardly flaring end or face 47 of the hard metal wear piece 40 and move the wing rail 9 away from the point portion 7 against the action of the springs 70, and that the wheel flange, continuing its travel toward the rail 11, will pass between the hard metal point portion 7 and the hard metal wear piece 40 until it escapes the lat-

ter, while the springs 70 press the wear piece 40 against the wheel flange. It will also be seen that when a car wheel passes over the frog from the rail 11 to the rail 8, the wheel flange will engage the outwardly flaring end or face 48 of the hard metal wear piece 40 and move the wing rail 9 away from the point portion 7 against the action of the springs 70, and that the wheel flange continuing its travel toward the rail 8 will pass between the hard metal point portion 7 and the hard metal wear piece 40 until it escapes the latter while the springs 70 press the wear piece 40 against the wheel flange.

The movable wing rail 9 rests normally in the position shown and it is returned to normal position by the springs 70 after the wheel flange escapes the wear piece 40 in moving in either direction, as just described, in passing between the wing rail 9 and the point portion 7.

The construction of the hard metal wear piece not only protects the movable wing rail from the wear of car wheel flanges while the wing rail is being moved from and returned to and being maintained away from the point portion 7, but it also provides a tread portion fitting against and forming in effect a continuation of the point end of the hard metal point portion 7 to receive car wheels in passing over the frog from the rail 9 to the rail 10 and the converse.

We claim:—

1. In a movable wing-rail frog, the combination of a supporting base, a hard metal point portion, means for securing the point portion to said base, point rails diverging from the heel end of the point portion and secured thereto, a wing rail movable toward and from the point portion, and yielding means pressing the wing rail toward the point portion.

2. In a movable wing-rail frog, the combination of a supporting base, a hard metal point portion, means for securing the point portion to said base, point rails diverging from the heel end of the point portion, and secured thereto, a wing rail movable toward and from the point portion, a hard metal wear piece between the point portion and the wing rail, means for securing the wear piece to the wing rail, and yielding means pressing the wing rail toward the point portion.

3. In a movable wing-rail frog, the combination of a supporting base, a point portion, means for securing the point portion to said base, a wing-rail movable toward and from the point portion, said wing rail having a long straight portion arranged substantially parallel to the adjacent side wall of the point portion, a hard metal wear piece between said straight portion of the wing rail and said point portion, and yield-

ing means pressing the wing rail toward the point portion.

4. In a movable wing rail frog, the combination of a supporting base, a point portion, means for securing the point portion to the supporting base, a wing rail movable toward and from the point portion, a hard metal wear piece between the point portion and the wing rail, means for securing said piece to the wing rail, said piece having a face extending substantially parallel to the adjacent side wall of the frog point and end faces flaring outwardly with respect to the first named face, and yielding means pressing the wing rail toward the point portion.

5. In a movable wing rail frog, the combination of a supporting base; a point portion; means for securing the point portion to the supporting base; a wing rail movable toward and from the point portion and having a base, a vertical web and a head; a hard metal wear piece having a head portion fitted against the inner side of the head of the wing rail and a web portion fitted against the inner face of the web of the wing rail and extending longitudinally thereof beyond said head portion; bolts extending through said web and said web portion and securing said piece to said movable wing rail; and yielding means pressing the wing rail toward the point portion.

6. In a movable wing rail frog, the combination of a supporting base; a point portion; means for securing the point portion to the supporting base; a wing rail movable toward and from the point portion and having a base, a vertical web and a head; a hard metal wear piece having a web portion fitted to the inner face of the web of the movable wing rail and a head portion extending toward said point section and fitted to the head of the movable wing rail; bolts having heads arranged beneath said head portion and securing the web of said wear piece to the web of the movable wing rail; and yielding means pressing the wing rail toward the point portion.

7. In a movable wing rail frog, the combination of a supporting base; a point portion; means for securing the point portion to the supporting base; a wing rail movable toward and from the point portion and having a base, a vertical web and a head having a portion of the inner side removed forming a recess; a hard metal wear piece having a head portion fitted to said recess and a web portion fitted to the web of the wing rail and extending longitudinally thereof beyond said head portion; bolts extending through said web and said web portion and securing said piece to said movable wing rail; and yielding means pressing the wing rail toward the point portion.

8. In a movable wing rail frog, the combination of a supporting base; a point por-

tion; means for securing the point portion to the supporting base; a wing rail movable toward and from the point portion and having a base, a vertical web and a head; 5 a hard metal wear piece having a head portion fitted against the inner side of the head of the wing rail and a web portion fitted against the inner face of the web of the wing rail and extending longitudinally 10 thereof beyond said head portion; a reinforcing strap fitted against the outer face of the wing rail; bolts extending through said web and said web portion and said strap and securing them together, and yielding 15 means pressing the wing rail toward the point portion.

9. In a movable wing rail frog, the combination of a supporting base; a fixed wing rail secured to said base; a hard metal point 20 portion provided with a part engaged with the fixed wing rail; means for securing the point portion to the fixed wing rail; point rails diverging from the heel end of the point section and secured thereto; a wing 25 rail movable toward and from the point section; and yielding means pressing the movable wing rail toward the point portion.

10. In a movable wing rail frog, the combination of a supporting base; a fixed wing 30 rail secured to said base; a hard metal point portion provided with a part engaged with the fixed wing rail; means for securing the point portion to the fixed wing rail; point rails diverging from the heel end of the 35 point section and secured thereto; a wing rail movable toward and from the point section; a hard metal wear piece between the point section and the movable wing rail; means for securing said wear piece to the 40 movable wing rail; and yielding means pressing the movable wing rail toward the point portion.

11. In a movable wing rail frog, the com-

bination of a supporting base; a fixed wing rail secured to said base and having a base, 45 a vertical web and a head; a hard metal point portion having a rib on one side thereof fitted to the fixed wing rail between the head and base thereof and having a channel in the other side thereof; bolts securing said 50 point portion to the fixed wing rail, said bolts having heads arranged within said channels; a wing rail movable toward and from the point section; and yielding means pressing the movable wing rail toward the 55 point portion.

12. In a movable wing rail frog, the combination of a supporting base; a fixed wing rail secured to said base and having a base, 60 a vertical web and a head; a hard metal point portion having a rib on one side thereof fitted to the fixed wing rail between the head and base thereof and having a channel in the other side thereof; bolts securing said 65 point portion to the fixed wing rail, said bolts having heads arranged within said channels; a wing rail movable toward and from the point portion and having a base, a vertical web and a head; a hard metal wear 70 piece having a web portion fitted to the inner face of the web of the movable wing rail and a head portion extending toward said point section and fitted to the head of the movable wing rail; bolts having heads 75 arranged beneath said head portion and securing the web of said wear piece to the web of the movable wing rail; and yielding means pressing the movable wing rail toward the point portion.

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

CHARLES W. REINOEHL.
WILLIAM M. HENDERSON.

Witnesses:

WM. HARRISON SMITH,
E. M. WARE.