

RAILWAY FROG.

935,205.

Patented Sept. 28, 1909.

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To all whom it may concern:

Be it known that I, HALBERT K. HITCHCOCK, a citizen of the United States, residing at Tarentum, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railway-Frogs, of which the following is a specification.

My invention relates to railway frogs cast or made in one piece, and has for its object such a design and arrangement of the parts as will provide a fixed and positive connection between the rails and frog proper, remove the shock occasioned by the wheels when passing over the joints where the rails join the frog, prevent the flanges of the wheels from cutting, hitting, or riding the point of the frog; also to provide a proper means for electrically connecting or bonding the frog into the general track system, all of which is more fully described and claimed.

By reference to the drawings forming a part of this specification, Figure 1 is a top view or plan of my improved frog, Fig. 2 is a section of the same on the line II—II in Fig. 1. Figs. 3, 4, and 5, are sections on the lines III—III, IV—IV, and V—V, respectively in Fig. 2, looking in the direction of the arrow, Fig. 6 is an end view of one half of the frog looking in the same direction, and it will be noted that in addition to the point 1, and heels 2, 2, there are the fish plates 3, 3, 3, made integral with the frog proper; these fish plates are further reinforced by the flanges 4, 4, 4, and vertical projections 5, 5, which project along the side of the top flange of the rail, high enough to offer a support to the wheels passing over the rail, in such a manner that at the time the wheels pass the joints 6, 6, they will be entirely supported thereon and prevented from pounding as they would otherwise.

Inasmuch as the tread of the wheels rapidly become grooved, due to the constant friction upon the rail, thus forming a projection or flange on the outer side of the rail from the flange proper, there is always a tendency for the wheel to travel around the heel of the frog as indicated by the arrow in Fig. 1, thus causing the flanges to either clip the point 1 or take the course on the wrong side of the point. In my improved frog, however, this tendency is overcome as that part of the tread which lies beyond the rail and forms the secondary flange above alluded to, rides up over the heel on the vertical pro-

jection 5, thus causing the wheel to trail naturally along its proper path. The projections 5, 5, may be cut away, forming inclined surfaces 12—12, so that this transference of weight from rail to fish plate and frog takes place gradually, thus preventing all shocks that occur when two rails or members meet as in the ordinary way. The section of the fish plates 3, 3, and the fact that they are integral with the frog, give them sufficient strength and rigidity to make the rails, when bolted thereto, assume the proper curve thus insuring the proper approach and departure to and from the frog. A flange or base 7 is provided with a hole 8 into which the bonding wires can be attached. It is preferred to have the web 11 which attaches the point to the heels just low enough to allow the flanges of the wheels to pass there through, and it may be high enough to act as a support to the wheels through the flanges, in which case it is preferable to have inclined approaches 10, 10, thereto; for in this construction the total strength of the frog may be made the greatest with the least weight of material; it also prevents dirt from accumulating there, or anyone's foot from getting accidentally caught therein.

While I have described with particularity one form of frog, carrying out my invention it will be readily seen some of the advantages thereof could be obtained by making the same in two or more pieces, by changing the form, and in other ways so I do not confine myself as regards my broader claims to the form shown.

Having described my improved frog what I claim as my invention is as follows:

1. A railway track structure having at one end two arms against which two rails are detachably secured, and which fit the said rails between their top and bottom flanges and constitute the only means of keeping the rails in alinement with the parts of the track structure with which the rails are supposed to register.

2. A railway track structure having at one end two arms against which two rails are detachably secured and which fit the said rails between their top and bottom flanges and having a projection extending up along the side of the head of the rail to the top thereof, the said arms constituting the only means of keeping the rails in alinement with the parts of the track structure with which the rails are supposed to register.

3. A railway track structure having at one end two arms against which two rails are detachably secured and which fit the said rails between the top and bottom flanges and have a projection extending up along the side of the head of the rail to the top thereof, the said projection being provided with inclined surfaces adapted to gradually receive the weight of the wheels traveling thereover, the said arms forming the only means of keeping the rails in alinement with the parts of the track structure with which the rails are supposed to register.

4. A railway track structure having at one end two arms one side of each being parallel to the path of the wheels passing thereover and which fit the rails between the top and bottom flanges on one side of the rail only in such a manner that when the rail is secured against the arms, the operative side of the head of the rail shall be in approximate alinement with an operative side of the track structure, the said arms forming the only means of attaching the rails to the track structure, substantially as set forth.

5. A railway track structure having at one end two arms one side of each being parallel to the path of the wheels passing thereover and which fit the rails between the top and bottom flanges on one side of the rail only in such a manner that when the rail is secured against the arms, the operative side of the head of the rail shall be in approximate alinement with an operative side of the track structure, the said arms being provided with a projection extending up along the side of the head of the rail to the top thereof, the said arms forming the only means of attaching the rails to the track structure, substantially as set forth.

6. A railway track structure having at one end two arms one side of each being parallel to the path of the wheels passing thereover and which fit the rails between the top and bottom flanges on one side of the rail only in such a manner that when the rail is secured

against the arms, the operative side of the head of the rail shall be in approximate alinement with the operative side of the track structure, the said arms being provided with a projection extending up along the side of the head of the rail to the top thereof, its top surface being inclined toward the structure of which it forms a part, substantially as set forth.

7. A railway track structure having at one end two arms which rest on the top of the bottom flange of the rails and extend up along the side of the top flange of said rails approximately to the top thereof and having their top surfaces inclined toward the body of the structure, substantially as set forth.

8. A railway track structure having a heel rail wider than the head of the rail to which it attaches and provided with an inclined surface adapted to gradually receive the load from that portion of the wheel tread which extends over the outside of the rail head, substantially as set forth.

9. A railway track structure having a heel rail wider than the rail head to which it attaches and provided with an arm along the outside of the said rail, the said arm fitting the said rail between the top and bottom flanges and extending up along the side of the head of the rail to the top thereof, the said arm forming the sole means of connecting the heel rail to the rail with which it cooperates, substantially as set forth.

10. A frog heel rail having at one end an arm which rests on the top of the bottom flange of the rail to which it attaches and extends up along the side of the top flange of said rail approximately to the top thereof and having its top surface inclined toward the frog of which it forms a part, substantially as set forth.

HALBERT K. HITCHCOCK.

Witnesses:

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