

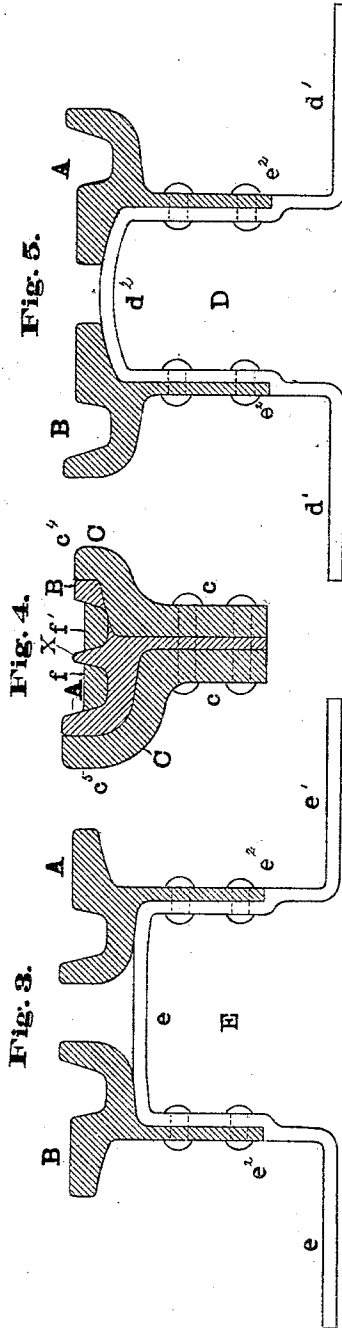
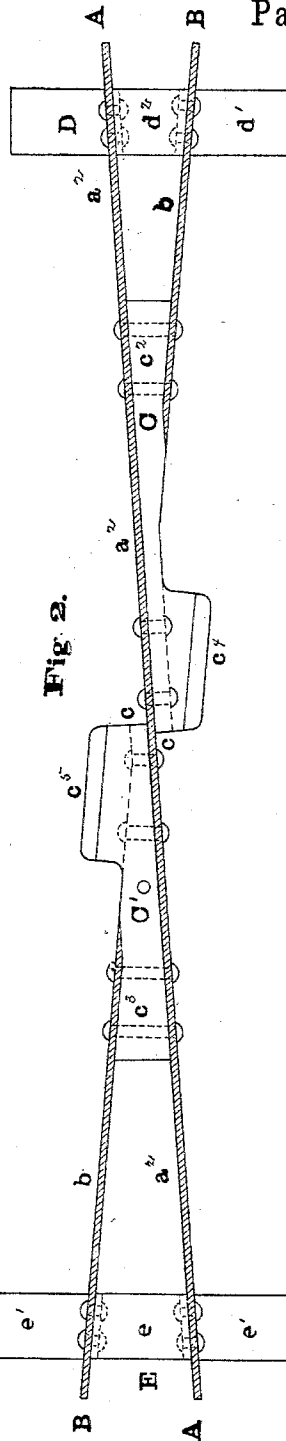
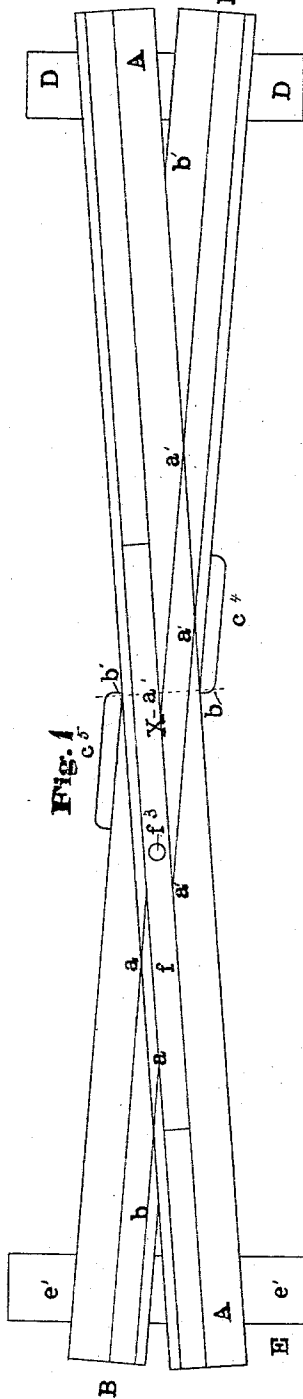
(No Model.)

2 Sheets—Sheet 1.

A. J. MOXHAM.
RAILROAD FROG.

No. 319,011

Patented June 2, 1885.



WITNESSES

James E. Reese
Francis P. Bailey

INVENTOR

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(No Model.)

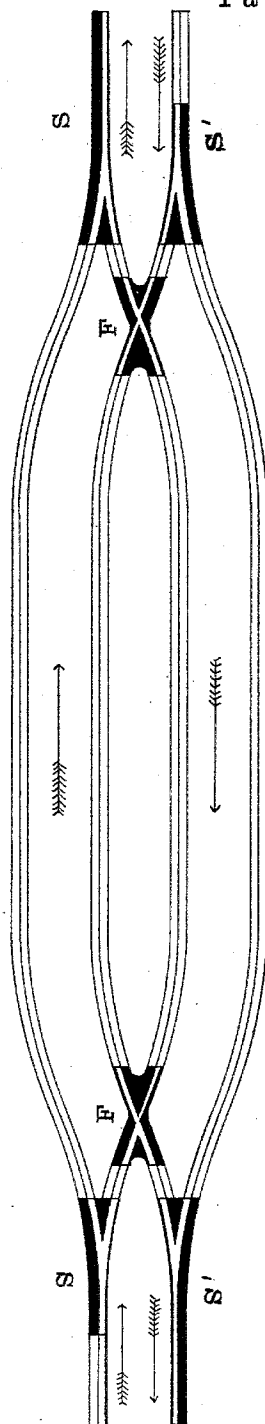
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Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 319,011, dated June 2, 1885.

Application filed March 10, 1885. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Railroad-Frogs, which invention or improvement is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide a form of frog, more particularly for street-car tracks, which shall be made of girder-rails capable of being connected by splice-bars to the rails which are used for the rest of the track.

The invention consists of the combinations of parts as hereinafter described, and set forth in the claim.

In the accompanying drawings, Figure 1 shows the frog in plan. Fig. 2 is a horizontal sectional plan of the frog, showing the heads of the rails removed and their webs exposed in section. Fig. 3 is an end view of one chair, showing a cross-section of the rails. Fig. 4 is a vertical transverse section at the line $b\ b'$, Fig. 1. Fig. 5 is an end view of the chair at the opposite end of the frog, showing a cross-section of the rails. Fig. 6 is a general plan showing two frogs as used in connection with a turn-out or passing switch from a single track. Said frogs are indicated by the letter F, and the switches by the letters S S', the arrows denoting the directions in which the cars would move in passing each other. I make no claim herein to said switches.

In said drawings the several parts are indicated by letters of reference, as follows:

The letter A indicates one of the guard-rails of the frog F, (shown in general plan in Fig. 6,) and B the other guard-rail, of the same form, but cut into two pieces at such a bevel as will form the necessary crossing or frog angle.

C C' indicate two choeks, connecting the webs of the rails A and B by means of rivets, and curved upward under the heads of the rails and protecting the otherwise exposed points of the rail B by the flanges $c^4\ c^5$, Figs. 1, 2, and 4. These flanges not only protect said points, but overcome any tendency in the rails to spread, and thus re-enforce the rivets which tie the rails together, as seen at $c^2\ c^3$, Fig. 2.

E indicates a steel chair, so shaped as to connect the ends of the rails A and B, as seen in Figs. 2 and 3, by the cross-web e . Said rails are supported on said chair by the offsets $e^2\ e^2$, and are bolted or riveted to the chair which is secured to the cross-ties of the track through its flanges $d\ d'\ e'\ e'$. The offsets $e^2\ e^2$ may be omitted, if desired, and bolts or rivets alone be used for supporting and securing the rails to the chairs.

D indicates a chair similar in shape to the chair E, the sides of the former, however, being closer together than the sides of the chair E. This difference in width is due to the fact that the guards of the rails are turned inward on chair E, as seen at Fig. 3, and outward on chair D, as seen at Fig. 5.

The rail B having been cut and set with its points presenting the proper angle to form the necessary groove, said groove then becomes a guide for cutting through the guard and head of the rail A, so as to make the groove in B continuous across A, the two grooves being cut to the same level in their respective rails. The rail A can be thus cut either when hot, by the blacksmith, or in a planing-machine. A clear cross passage-way is thus provided for the wheels of the cars.

In order to protect the point X, Figs. 1 and 4, and to insure the easy passage of the cars across the break from part of the rail B to the other part of the same rail, special means are provided, as follows: The plate f , Fig. 1, is laid in the groove of the rail A, said plate crossing or spanning the groove in rail B and secured to the choek C' by the bolt or rivet f^3 . The plate f is beveled off at each end, and is of such height in the center as to leave the point X, Figs. 1 and 4, exposed above it for only about three-eighths of an inch.

Instead of cutting away the head and guard of the rail A to the full depth of the groove, said rail may be cut to such depth at its outside only, and thence beveled upward to the height of the plate f , inserted in the inside. An incline is thus formed from every direction in said groove, reaching a level at and around the point X, as seen at f , Fig. 4.

By means of the construction above described the wheel-flange of an approaching car

running on the incline *f* lifts the tread of the wheel from contact with the head of the rail, and does not permit the wheel to again come in contact with the head of the rail until the break or groove is passed. The entire passages are thus made smooth and the exposed points protected from wear.

If the groove in the rail A is cut down level with the groove in the rail B, an X-shaped plate lying in both grooves and inclined or beveled at its four ends can be substituted in place of the single plate *f*, presenting in cross-section the view shown at *ff'*, Fig. 4.

If the rail A be entirely cut through, the two chocks C C may be united in one piece, and, if desired, may protrude up and around the point X, and so protect the same.

Heretofore the frogs in use in street-railway tracks have been made of cast-iron. Cast-steel has been tried, but has failed for such purposes, because of the unreliable character of such material. The use of such castings in conjunction with rolled steel rails only brings into greater prominence their short-lived character, for the friction of the car-wheels causes

such rapid wear that frequent renewal is necessary. The frogs, however, herein described are built up of the same material as that composing the rails of the track—namely, rolled-steel—and, when used in conjunction with built-up switches of the same material, make a homogeneous, strong, and very durable track throughout in all its parts. Superior economy in time, labor, repairs, and money outlay is thus largely secured by the use of these frogs.

Having thus fully described my said improvements, as of my invention, I claim—

A frog forming a crossing for the wheels of railway-cars, composed of rolled girder guard-rails, having the webs of said rails secured together by a chock or chocks, and bolts or rivets near the apexes of said frogs, and said rails near their divergent ends secured to the rails of the track, substantially as and for the purposes set forth.

ARTHUR J. MOXHAM.

Witnesses:

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