(No Model.)

J. McKENNA.

RAILROAD FROG.

No. 359,087. Patented Mar. 8, 1887.

Fig. 1.

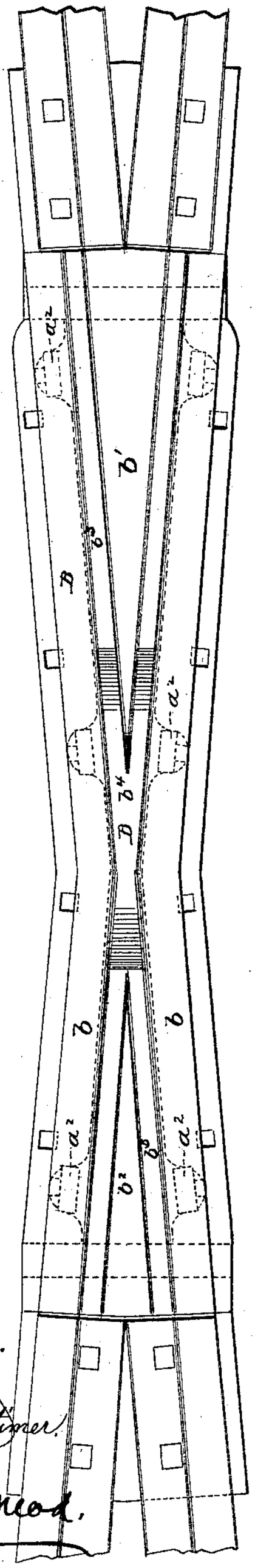


Fig. 2.

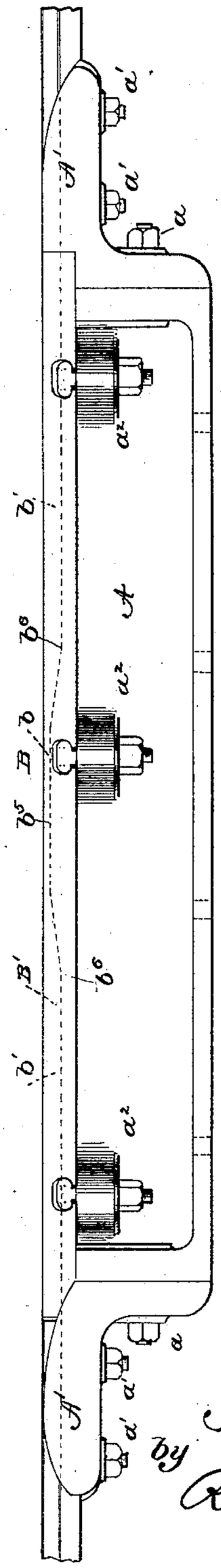
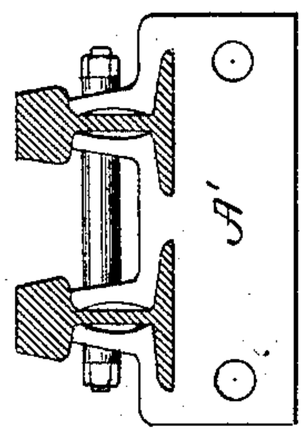


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN McKENNA, OF JOHNSTOWN, PENNSYLVANIA.

RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 359,087, dated March 8, 1887.

Application filed October 6, 1886. Serial No. 215,429. (No model.)

To all whom it may concern:

Be it known that I, JOHN MCKENNA, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-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 railroad-frogs.

The objects of the invention are to produce a frog for street or other railroads which shall be permanent, substantial, and economical; to produce a railroad-frog having the upper portion upon which the wheels bear readily removable, thus facilitating the replacement of worn parts without disturbing the body or base of the frog or the connection between the same and the rails adjacent thereto; to produce a frog which will not present sharp or deep grooves, and so avoid injury to wheels of vehicles from wrenching; and, finally, to produce a frog over which cars may pass without the jolting incident to passage over frogs constructed as heretofore.

With these objects in view the invention consists in a face-plate for a frog for street and other railroads provided with wing-rails, point, and guide, and also provided with grooves, the bottoms of which rise toward the apex of the frog to form a ledge integral with the face-plate, over which ledge the flanges of the wheels pass, whereby the tread of the wheels will be lifted up from the frog, causing the wheels to cross it without jar. Furthermore, in the combination, with the base of a frog, of brackets or supports at the ends thereof detachable from the upright faces of the ends of the base, and thus replaceable upon the same, to hold and retain the ends of the adjacent rails securely in position against the face-plate, and, finally, in the combination with the base and removable face-plate of the replaceable brackets.

In the accompanying drawings, forming part of this specification, and in which like letters of reference indicate corresponding parts, Figure 1 is a plan view of a frog in accordance with this invention, showing the face-plate and the ends of the rails adjoining the same. Fig. 2 is a side elevation showing the base, the brackets or supports, and the face-plate, also showing in dotted lines the ledge or raised portion upon which the flanges of the wheels bear. Fig. 3 is a sectional view showing the construction of the brackets or supports when they are designed to receive T-rails.

In the drawings, A represents the base, designed to be fixed permanently to the ties, sleepers, the ground, or elsewhere, to furnish a firm support for an upper or face plate. This base is made of a length and configuration to suit the intersecting rails, and may be constructed to receive the ends of them; but it is preferable to provide brackets or supports A′, detachable from the base and capable of ready replacement upon the same to serve that purpose. These brackets or supports A′—one of which is placed at each end of the base and secured thereto by bolts or screws *a*—have indentations or sockets in their upper surfaces, which receive the adjoining rails and hold them snugly in position against the face-plate. The indentations or sockets may be of various forms to correspond to the different kinds of rails employed in the construction of tracks.

In Fig. 1 I have shown the indentations or sockets formed to take the ordinary side-bearing street-rails, and in Fig. 3 I have shown them capable of receiving T-rails. The rails are firmly held in place in the indentations or sockets by bolts or screws *a′*, which pass through the brackets or supports and the rails.

The upper portion of the base A is provided with a suitable number of projections or ears, a^2, having holes in them for the reception of bolts or screws, by means of which the upper or surface plate, B, is secured to the base. This removable plate B, forming the upper surface of the frog, is made of iron or steel of necessary quality and thickness to withstand successfully the wear and strains caused by cars passing and shifting over the frog, and it may either be rolled or forged to the proper size, or it may be cast and the top chilled, or the plate may be of cast-steel. This plate B, provided with wing-rails *b* and a point, *b′*, which form continuations of the rails, is provided at the end opposite the point with a guide-rail, b^2, and also has grooves b^3. These grooves, which are at the required angle, are formed within the wing-rails and between them

and the point or guide, either by planing or milling.

In order to obviate the jar attending the passage of wheels over frogs as heretofore constructed, I provide the grooves with a raised portion or ledge, b^4, which is integral with the upper or face plate. As shown by dotted lines in Fig. 3, this raised portion or ledge being highest, forms a plane surface, b^5, near the middle of the frog, or at that portion of it where the wheels are transferred, either from the point to the wing-rail, or from the wing-rail to the point, and there is a gradual slant from each end of this flat surface b^5 down to the plane of the bottom of the groove b^6, where the raised portion or ledge ends. As the wheels leave the rails the flanges enter the grooves b^3, while the treads of the wheels are either upon the wing-rail or point. When the flanges arrive at b^6 and come in contact with the raised portion or ledge, the wheels are gradually lifted up and the tread is raised sufficiently to be clear of the point and wing-rail. In this condition the wheels are transferred either from the wing-rail to the point, or vice versa. The wheels then leave the flat surface b^5, and gradually descend until they reach b^6, where the raised portion or ledge ends, and the tread again comes in contact with the frog.

Frogs constructed in accordance with my invention are to be distinguished from those in which removable ledges of elastic substance may have been supplied, since such ledges, it is believed, are apt to become displaced or broken.

It will be observed that in the frogs constructed in accordance with my invention the ledges are in one piece with the face-plate, and so cannot become displaced or broken. My frogs, moreover, are free from sharp or deep grooves, enabling vehicles to pass over them without sustaining any injury to the wheels from jarring or wrenching.

From the foregoing it will be clear that when the upper or surface plate has become worn and unfit for use it may readily be removed and replaced by a new one without disturbing the other portions of the frog or being encumbered by them. It will further be apparent that the construction shown forms a permanent, substantial, and economical frog.

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

1. The face-plate of a railroad-frog provided with wing-rails, point, and guide, there being between the wing-rails and point or guide grooves the bottoms of which rise and form ledges integral with the face-plate, substantially as and for the purpose described.

2. The combination, with a base-plate, of detachable, and thus replaceable, brackets or supports secured to upright faces of the ends thereof, to hold and retain the ends of adjacent rails securely in position against the face-plate, substantially as described.

3. The combination, with the base of a frog, of detachable brackets or supports at the ends thereof, and a removable face-plate, substantially as described.

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

JOHN McKENNA.

Witnesses:
STEPHEN QUIRK,
GEORGE H. BROWN.