J. WOOD.

Railway-Frogs.

No. 145,041. Patented Nov. 25, 1873.

Fig. 1.

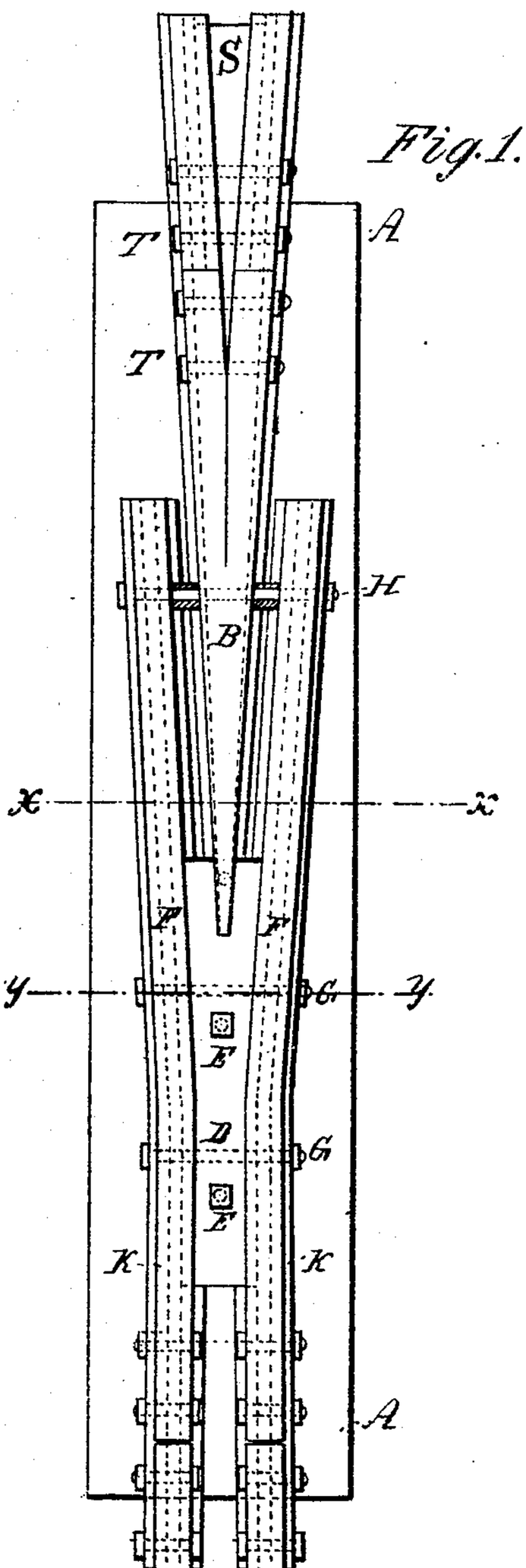

Fig. 2.

Fig. 3.

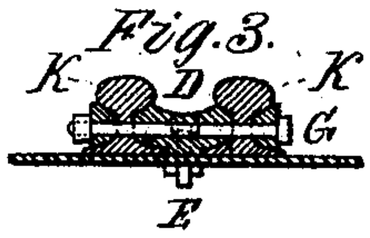

Fig 4

Witnesses

James S Reid
A Bell Malcomson

Inventor

Jos G. Wood

UNITED STATES PATENT OFFICE.

JOSEPH WOOD, OF RED BANK, NEW JERSEY.

IMPROVEMENT IN RAILWAY-FROGS.

Specification forming part of Letters Patent No. **145,041**, dated November 25, 1873; application filed June 12, 1872.

To all whom it may concern:

Be it known that I, JOSEPH WOOD, of Red Bank, county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Railway-Frogs; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon, and in which—

Figure 1 is a top view of the frog; Fig. 2, an edge view; and Figs. 3 and 4, sections through the throat of the frog.

The same letters designate the same parts in all the figures.

My invention relates to that class of railway-frogs in which the side rails and the tongue or frog-point are stationary; and my object is to relieve or prevent the lateral drag of the wheels in passing through the frog; and, also, to give the frog proper stability and elasticity upon the road-bed.

In the accompanying drawings, A A is a bed or bottom plate of wrought-iron, which may or may not be used. To this plate, if used, I securely attach the tongue B of the frog, the point being fastened by the clevis-bolt C, which embraces it and draws it down to the bed-plate, or to the cross-tie if the plate is not used, and is secured by a key below, so as to be easily removed or replaced. I also make the tongue of the frog about three-sixteenths of an inch higher than the side rails, except at the point, as shown in Fig. 4, so that the wheels can pass from the tongue to the side rails, or vice versa, without that concussion and abrasion which are now experienced from the low position of the tongue in the frog. In line with the tongue B of the frog I place the throat or middle piece D, which is of hard wood or other suitable material, and molded on the edges to fit the sides of the rails; and its surface is placed sufficiently below the top of the rails to give the necessary clearance for the flanges of the wheels, as shown in Fig. 3. This middle piece D is fastened down to the cross-ties or bottom-plate by the key-bolts E E. On either side of the middle piece D, I place the side rails F F, which are curved, to suit the frog, toward the open end, and also to suit the direction of the rails with which they connect at the opposite end. These side rails are secured to the middle piece D by bolts G G passing horizontally through all; and they are also secured to the bed-plate or cross-ties in any convenient manner; but the ends which embrace the tongue of the frog are secured to each other, and also to the tongue, by the horizontal bolt H, upon which there are thimbles between the tongue and the outer rails to keep the several parts in proper place. The wooden block, between the point-rails at S, extends past the end of the frog so as to make a connection with the meeting rails of the main track by means of the bolts T T, which pass through the rails and wood, and the block D may be extended in the same manner at the outer end of the frog.

In the construction of railway-frogs and switches, steel rails are now most generally used; but, as steel rails are particularly liable to break in cold weather from the lateral shocks to which they are subjected by the passing wheels, I fortify or protect the side rails F F by placing safety-bars K K of wood or iron on their exterior and interior sides, where they can be applied. These safety-bars should be molded to suit the rails, and are secured to the rails by bolts passing horizontally through them, by which means, in case of fracture, the pieces of the rails will be retained in place, and thus prevent accident to passing cars.

I am aware that middle pieces of cast-iron have been used between the side rails of a frog where I have specified that hard wood should be employed; the rigidity of the iron and its weight or inertia, however, make the frog as solid as an anvil, and, therefore, liable to fracture the flanges of the wheels; but the lightness and elasticity of the wood, as I have ascertained by careful experiments and observation, enable the wheels to pass through the frog with greater ease, the action of the flanges against the side rails and tongue of the frog being thereby greatly softened.

Having thus described my improvements in

railway-frogs, what I claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. A railway-frog with wood placed between the rails thereof, and fastened thereto, in the manner and for the purpose substantially as described.

2. A railway-frog with the tongue elevated above the side rails, substantially as herein described.

JOSEPH WOOD.

Witnesses:
DAVID MALCOMSON,
A. BELL MALCOMSON, Jr.