





# UNITED STATES PATENT OFFICE.

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## RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 491,842, dated February 14, 1893.

Application filed April 23, 1892. Serial No. 430,356. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID HORRIE, of Kaukauna, in the county of Outagamie and State of Wisconsin, have invented a new and Improved Railroad-Frog, of which the following is a full, clear, and exact description.

This invention relates to improvements in railroad frogs of a class wherein swing rails are employed, and has for its object to improve the construction of my combined frog and switch, patented March 15, 1892, No. 471,004, in which a swing rail on a frog is connected in sequence with converged shifting rails of an adjacent switch, and operating mechanism adapted to release a locking device for the swing rail, and simultaneously adjust said rail and the switch rail so as to align with the main track or side track in either direction of travel.

To this end, my invention consists in the peculiar construction and combination of parts as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement with parts broken away and adjacent end portions of two converging switch rails; Fig. 2 is a transverse section of parts on the line 2—2 in Fig. 1; and Fig. 3 is a transverse section on the line 3—3 in Fig. 1.

The base plate A, is elongated, flat and rectangular in form, and at one end two converged track rails B, B', are imposed and secured, their end portions that adjoin being properly sloped on the side edges which meet, so as to produce a suitable tapered extremity.

Upon the base plate A, that is supported as usual by the spaced cross ties C, a swing rail D, is pivoted at *a* preferably near the end *a'* of said rail that is adjacent to the terminals of the rails B, B'. The swing rail D, extends toward the opposite end of the base plate A, of a proper length for effective service and on its sides opposite the pivot *a*, two similar guide rails E, are bolted, these being laterally supported by spacing blocks *b*, that are placed between the swing rail and guide rails as shown in Fig. 3, transverse bolts *c* serving to bind all together, and retain the guiderails at a proper distance from the swing rail.

On the outer side of each of the guide rails E, clamping plates *d*, are bolted, which plates are opposite each other, and also opposite the pivot bolt *a*, each clamping plate being extended outwardly and furnished with a hook portion *d'* that embraces the edge portion of the base plate loosely, so that these plates are adapted to retain the guide rails loosely in contact with the base plate and allow the combined swing rail and guide rails to vibrate together on the pivot center.

The joined rails B, B', each represent one rail of a main track and a side track respectively, and at the opposite end of the base plate A two other rails G, G' are secured, which are suitably converged to align with the swing rail D, when its end *a'*, is shifted to coincide with the main track rail B, or side track rail B', thereby providing continuation of these rails.

It will be seen, that the guide rails E, are bent outwardly at their ends *e e'* thus producing throats for the free entrance of the flanges of car wheels that traverse the road, and also that there are portions of the guide rails projected beyond the end *a'* of the swing rail D, and outwardly bent a proper degree to conform with the divergence of the rails B, B', from their points or joint terminals, so that the flared ends *e'* of the guide rails will be adapted to have yielding contact with wheels running on the rails B, or B', or in other words on the main track rails or side track rails.

Between the rails G, G', a spring block *g*, is pivoted by one end *g'* upon the bracket plate or shoe that holds the ends of these rails secured upon the base plate A, which block has two spring limbs *g<sup>2</sup>* formed on it that are so bent and spread apart as to allow their outer sides to press elastically upon one rail head and nearly touch the other rail head, the terminals of the spring limbs being bent toward each other as shown, so as to permit the flange of a car wheel to enter the throats thus produced and swing the block. Upon the block *g*, a lateral arm *h* is formed or secured which extends outwardly below the rail G' and then forwardly upon the cross tie to have its free end pivoted upon a slide bar *i*, which latter lies transversely of the main track and projects beyond at the outer



end, where it is pivoted to one limb of a bell crank lever  $i'$ , the other limb having a loose jointed connection with a draft rod  $i^2$  that is shown broken but is designed to extend to a switch stand or other device of like character whereby a longitudinal reciprocal movement of the bar  $i$  may be effected manually when this is necessary. The end portion of the slide bar  $i$ , which is adjacent to the base plate A, is shouldered so as to allow a part  $i^3$  to extend below the base plate A, and upon the thicker portion of the slide bar a latch hook  $k$  is pivoted as at  $k'$  said hook having its nose  $k^2$  interlocked with a hole in the base plate above the lip piece  $i^3$  of the slide bar when the latter is adjusted to effect such a connection of parts. Upon the slide bar  $i$ , a link plate  $m$  is placed which is perforated laterally at one end to receive a pivot  $m'$ , which passes through the latch hook  $k$ , above the pivot  $k'$ , and end of the arm  $h$  being imposed upon the link plate and pivoted thereto by a vertical pin  $m^2$  that passes through an elongated hole in the slide bar, and is held from vertical displacement by a washer  $m^3$ , and cross pin below in the pin, as shown in Fig. 2. The slide bar  $i$ , is also extended to have a lateral bolted connection with the side of the swing rail D, and oppositely of this end  $i'$  of the bar  $i$  a guard plate  $n$ , is bolted to the swing rail, said guard plate having a hook portion  $n'$  formed on it which projects below the base plate A, and thus serves to prevent a vertical displacement of this end portion of the swing rail, which is a desirable feature of improvement, as it loosely secures the part of the swing rail on the base plate that is farthest from the pivot bolt  $a$ .

By the construction of parts as described, a train running on the side track of which G' is a rail, will impinge the flange of its leading wheel upon the side of the spring block  $g$ , and move it laterally, thereby actuating the attached arm  $h$ , and connected parts, so as to lift the latch hook  $k$ , and release the swing rail that has been locked from lateral movement by said hook. In case a train moves in the opposite direction, if the main track is open, by reason of the alignment of the swing rail D, with the side rails, the flanges of the wheels impinging on one of the guide rails E, will vibrate the swing rail into alignment with the main track, and simultaneously throw the latch hook  $k$ , into a locked condition so as to prevent a lateral swinging of the swing rail.

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

1. In a railroad frog, a swing rail, and two guide rails secured on the swing rail laterally and extending beyond one end of said swing rail, substantially as described.

2. In a railroad frog, a swing rail pivoted on a base plate, guide rails secured on the swing rail and projecting beyond one end thereof, and spacing blocks between the guide rails and swing rail, substantially as described.

3. In a railroad frog, a swing rail pivoted on a base plate near one end of said rail, and two guide rails outwardly bent at the ends and secured on spacing blocks which intervene between the guide rails and swing rail, said guide rails projecting beyond the end of the swing rail nearest to its pivot, substantially as described.

4. In a railroad frog, a swing rail pivoted on a base plate, guide rails secured one on each side of the swing rail, spacing blocks between the swing rail and guide rails, and hooked brace plates secured on the guide rails opposite the pivot of the swing rail, and engaging their hooked ends with side edges of the base plate, substantially as described.

5. In a railroad frog, a swing rail pivoted on a base plate near one end of said rail, guide rails having outwardly bent end portions and secured to the swing rail and to intervening spacing blocks on each side, the end portions of the guide rails projecting beyond the end of the swing rail nearest its pivot, and lying outside of converging ends of track rails in sequence with the swing rail, substantially as described.

6. The combination with a base plate, converging track rails thereon at its ends, and a swing rail pivoted near one of its ends, of a latching device adapted to lock the swing rail, and a spring block pivoted at one end of the base plate between two converged track rails, and a lateral arm on the spring block engaging the latching device, substantially as described.

7. The combination with a base plate, a swing rail pivoted near one end on the base plate, two guide rails bent outwardly at their ends and secured at the sides of the swing rail and projecting beyond its end nearest to the pivot bolt, spacing blocks between the swing rail and guide rails, and hooked brace plates secured on the guide rails opposite the swing rail pivot and hooking over side edges of the base plate, of a latching device for the end of the swing rail farthest from its pivot bolt, having a slide bar that actuates it, a spring block pivoted by one end between converging track rails at the secured end of the swing rail, and a lateral arm on the spring block pivoted at its outer end on the slide bar of the latching device, substantially as described.

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Witnesses:

M. C. CONNORS,  
F. I. LOLAR.