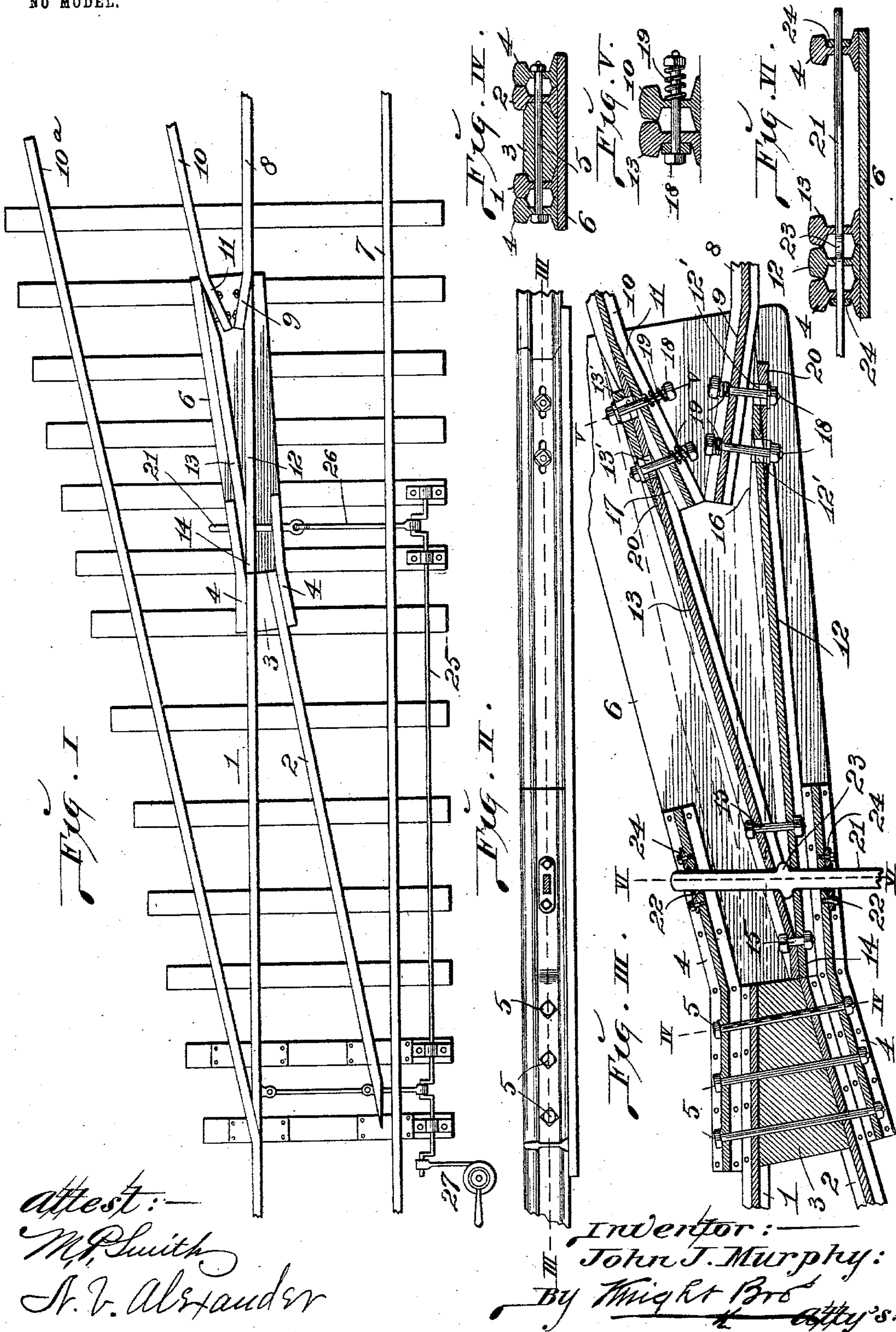


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J. J. MURPHY.
RAILWAY SWITCH.
APPLICATION FILED AUG. 14, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

JOHN J. MURPHY, OF WELLSTON, MISSOURI, ASSIGNOR OF FORTY-NINE ONE-HUNDREDTHS TO JAMES D. HOUSEMAN, OF ST. CHARLES, MISSOURI.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 751,988, dated February 9, 1904.

Application filed August 14, 1903. Serial No. 169,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. MURPHY, a citizen of the United States, residing in Wellston, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a movable frog connected to the innermost side-track rail of a railway-switch and to the adjacent main-track rail, and also to means by which the throw-rod is connected to the frog, also to a bed-plate on which the frog is supported and operates.

The object of the invention is to furnish a construction in which lateral movement of the frog is permitted and whereby it is yieldingly held to permit the shifting thereof.

A further object is to furnish a loose connection between the frog and the side-track and main-track rails, whereby longitudinal movement of the frog is permitted under expansion and contraction due to extremes of heat and cold, so that said frog will adjust itself relatively to the rails to which it is connected and the opposing main and lead rails at its point to prevent binding of the parts.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of my switch. Fig. II is an enlarged side elevation of the frog of the switch, the bed-plate, and the reinforcing-rails. Fig. III is a horizontal section taken on line III III, Fig. II. Fig. IV is a vertical cross-section taken on line IV IV, Fig. III. Fig. V is a vertical cross-section taken on line V V, Fig. III. Fig. VI is a vertical cross-section taken on line VI VI, Fig. III.

1 and 2 designate the lead-rails of the switch, the ends of which that oppose the switch-frog being separated by a wedge-shaped filler-block 3, by which they are held spaced at a uniform distance apart.

4 designates reinforcing-rails, which embrace the lead-rails and extend beyond the

ends thereof, as seen in Figs. I and III. The lead-rails are held between the reinforcing-rails in their separated condition by bolts 5, that pass through the reinforcing-rails, lead-rails, and filler-block.

6 designates a bed-plate by which the reinforcing-rails 4 are carried and which extends forwardly beneath the reinforcing-rails, the filler-block, and the combined ends of the lead-rails in the direction in which the protruding ends of the reinforcing-rails extend.

7 designates one of the main-track rails, and 8 is the other track-rail, the latter of which is adjacent to the side-track rails 10 and 10^a. The inner main-track rail 8 is bent outwardly at 9 toward the inner side-track rail 10, and the adjacent inner side-track rail 10 is bent inwardly at 11 to extend into proximity with the end of the inner main-track rail. The bent ends of the rails 8 and 10 extend onto the bed-plate 6.

12 designates one of a pair of frog-rails, and 13 is the other of said frog-rails, the two rails being placed face to face at the point of the movable frog, as seen at 14, Figs. I and III, and being held together by bolts 15, that extend transversely through the web of the rails. The rear ends of the frog-rails 12 and 13 are chamfered, as seen at 16 and 17, so that said rails will lie against the inner sides of the main-track rail 8 and side-track rail 10, to which they are fitted. The frog-rail 12 contains longitudinal slots 12', located in its rear end, and the frog-rail 13 contains longitudinal slots 13', located in its rear end.

18 designates connecting-bolts that pass through the slots 12' and 13' and through the main-track rail 8 and side-track rail 10, as seen most clearly in Fig. III. Surrounding the bolts 18, preferably at the inner ends, are springs 19, that serve to hold the frog-rails 12 and 13 yieldingly to the main and side track rails, so that said frog-rails may be moved independently of said main and side track rails, while at the same time sufficient holding connection by the bolts 18 is permitted to prevent accidental displacement of the combined frog-rails.

20 designates slotted wedge-blocks posi-

tioned between the outer ends of the bolts 18 and the frog-rails 12 and 13 to provide straight bearings for the heads of said bolts to compensate for the difference in alinement of the main and side track rails and the frog-rails connected thereto in order that the movement of said frog-rails may not be interfered with as a result of such difference of alinement.

21 designates a throw-rod which operates in slots 22 in the reinforcing-rails 4 and passes through the webs of the frog-rails 12 and 13 for the operation of said rails combinedly. This throw-rod bears bosses 23, situated between the webs of the frog-rails, as seen most clearly in Fig. III, whereby it is connected to said rails after they are united to each other, thereby providing sufficient play of the throw-rod in the frog-rails to prevent binding of said rod in the frog-rails.

24 designates slotted collars secured to the reinforcing-rails 4 and through which the throw-rod 21 operates. These collars serve as bearings for the throw-rod and prevent wear by said rod on the reinforcing-rails. By this arrangement damage to the reinforcing-rails is avoided, and when the wear-collars become worn to an extent to render them unserviceable the collars may be removed and replaced by new ones without the expense and labor of introducing new reinforcing-rails.

25 is a tumbler-rod of common form, to which the throw-rod 21 is united by a connecting-rod 26. (See Fig. I.) The tumbler-rod leads to a switch-stand 27 of any common form.

In the practical use of my switch the combined frog-rails are shifted laterally when the throw-rod 21 is reciprocated and their rear chamfered ends slide in engagement with the bent ends of the main-track rail 8 and side-track rail 10, the movement of the frog-rails being readily permitted by reason of their being yieldingly connected to said rails 8 and 10. The loose connection of the frog-rails to the main and side track rails permits longitudinal movement of the frog-rails at all times as a result of the chamfering of the ends of the frog-rails to rest against the main and side track rails and the springs applied to the connecting-bolts 18, so that whenever expansion and contraction under extremes of heat and cold occurs the frog-rails will readily adjust

themselves to the rails to which they are united, thereby avoiding any binding action of the parts. In the movement of the frog-rails they are solidly supported by the bed-plate 6 and ride freely therein instead of scraping over the railway-ties, as would be the case in the absence of said bed-plate.

I claim as my invention—

1. In a railway-switch, the combination of adjacent main and side track rails, a frog having tapering rear ends fitted to said rails, and means whereby said frog is yieldingly connected to said rails, substantially as set forth.

2. In a railway-switch, the combination of adjacent main and side track rails, a frog having its rear ends fitted to said rails for longitudinal movement thereagainst, and bolts passing through said frog and rails to connect said parts, substantially as set forth.

3. In a railway-switch, the combination of adjacent main and side track rails, a frog having its rear ends fitted to said rails for longitudinal movement thereagainst, bolts passing through said frog and rails to connect said parts, and springs applied to said bolts to hold the rear ends of said frog yieldingly to said rails, substantially as set forth.

4. In a railway-switch, the combination of adjacent main and side track rails, a frog having slotted rear ends fitted to said rails for longitudinal movement thereagainst, and bolts passing through the slots in said frog and through said rails to connect said members, substantially as set forth.

5. In a railway-switch, the combination of main and side track rails, a frog having its rear ends fitted to said rails, bolts connecting the rear ends of said frog to said rails, and wedge-blocks fitted to the rear ends of said frog to receive the bearing of said bolts, substantially as set forth.

6. In a railway-switch, the combination of main and side track rails, a movable frog connected to said rails, a throw-rod passing through said frog, and bosses on said throw-rod between the sections of said frog, substantially as set forth.

JOHN J. MURPHY.

In presence of—

M. P. SMITH,
SHERWOOD EBERSOLE.