

Jan. 12, 1926.

W. H. RIFE

1,569,141

SWINGING RAIL SWITCH PROG

Filed July 29, 1924

2 Sheets-Sheet 1

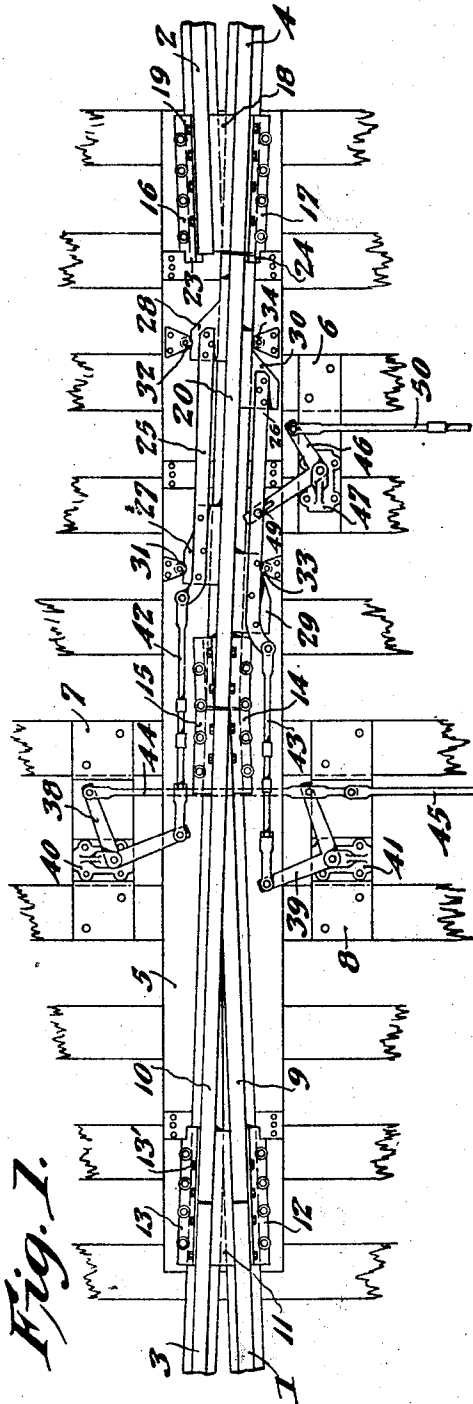


Fig. 2.

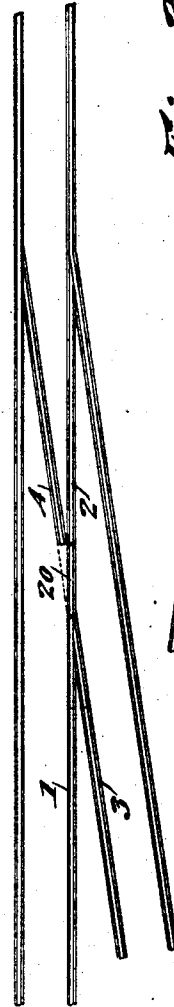


Fig. 3.



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2 Sheets-Sheet 2

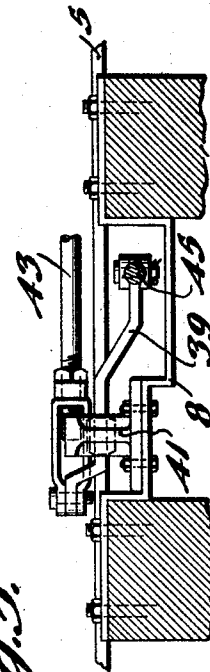
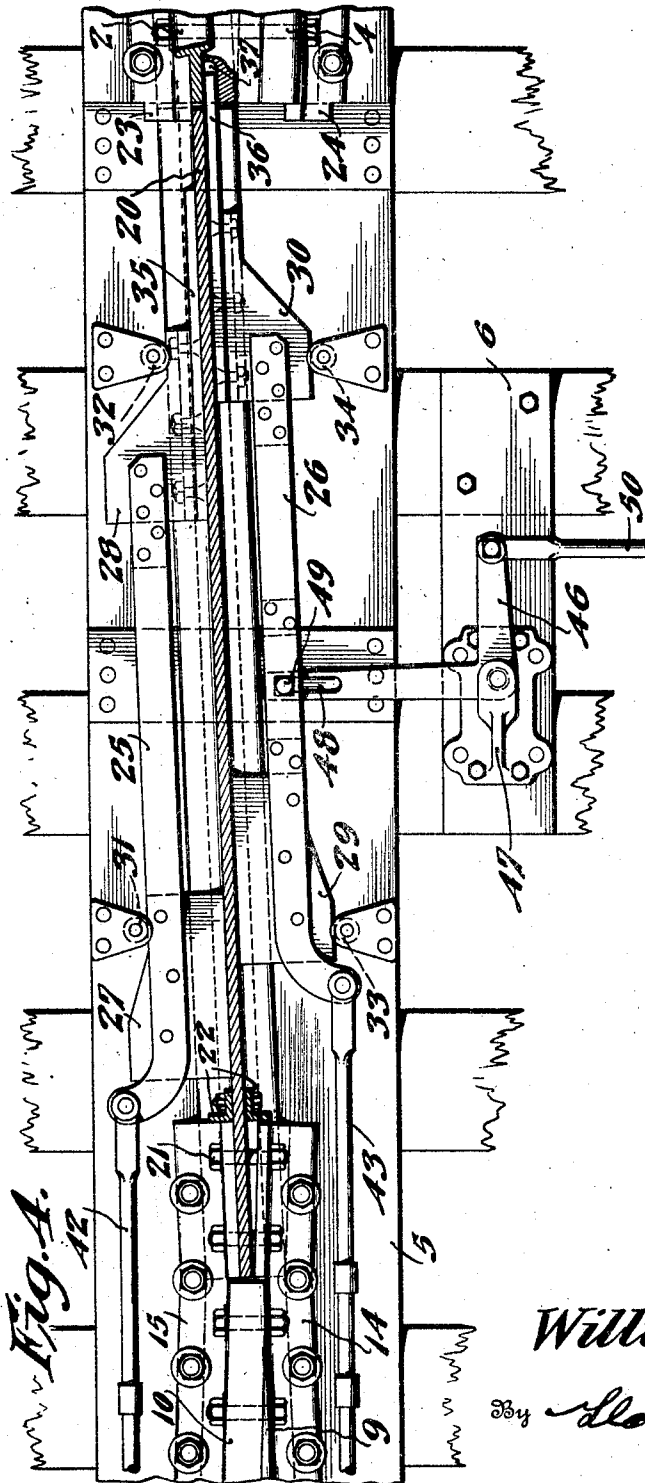


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM HARISON RIFE, OF LA JUNTA, COLORADO.

SWINGING-RAIL SWITCH FROG.

Application filed July 29, 1924. Serial No. 728,963.

To all whom it may concern:

Be it known that I, WILLIAM HARISON RIFE, of La Junta, in the county of Otero and State of Colorado (whose post-office address is La Junta, Otero County, Colorado), a citizen of the United States, have invented certain new and useful Improvements in a Swinging-Rail Switch Frog, of which the following is a specification.

10 My invention relates to improvements in a swinging rail switch frog, and particularly to a single end swinging rail frog.

15 An object of this invention is to provide a frog of this character which can be installed in track lines already in use, without material alterations in the main tracks, and without lengthy discontinuance or interruption of service over the tracks.

20 A further object resides in so constructing and mounting the parts that a single end swinging rail is pivoted at one end between the spliced plates holding the main rails in place, and in providing means by which the remaining end is swung to each of its
25 positions for use, and is positively held and locked in each of these positions.

30 With the above and other objects in view, which will be apparent to those skilled in the art, my invention consists in certain novel features of construction and combinations of parts which will be set forth in connection with the drawings.

In the drawings:—

35 Figure 1 is a plan view of a switch frog arrangement in accordance with my invention and illustrating the operating connections.

Fig. 2 is a diagrammatic view illustrating the installation for a left hand turn-out.

40 Fig. 3 is a similar view showing a right hand turn-out.

Fig. 4 is an enlarged plan view of the frog and associated parts.

45 Fig. 5 is a fragmentary view showing a portion of the operating means in detail.

As indicated in Figs. 2 and 3, my invention can be applied and used in different connections and in various track lay-outs. In Fig. 1 I have, however, shown the essential portions of my invention. The main rail sections are indicated at 1 and 2, and the switch rails at 3 and 4. To all intents and purposes, these rails may be considered a part of a standard installation, and it is
55 not necessary to disturb or reconstruct these portions of the rail system.

The portions of the installation particular and peculiar to my invention are carried by a base plate 5 and the cross plates 6, 7 and 8, which will be secured on the
60 ties adjacent and alongside of this base plate 5. The rail points 9 and 10 are mounted on the base plate 5 in line with the converging rail sections 1 and 3, and are held in proper alinement by the spacing
65 block 11 and the rail clips or fish plates 12 and 13, held in place by bolts 13¹. The rail section 9 is cut away on one side to merge into the tread of the rail section 10, and the points of these rails are secured on the base
70 plate 1 by splice plates 14 and 15.

The splice plates 14 and 15 are extended beyond the ends of the rail sections 9 and 10, and these extending ends are spread or
75 flared to line up substantially with the rail clips 16 and 17 holding the ends of rail sections 2 and 4. The rail sections 2 and 4 are spread by a block 18, and are clamped in place by bolts 19, and the rail clips 16 and 17 are extended at their ends beyond the
80 ends of rail sections 2 and 4.

A swinging rail section 20 is fitted at one of its ends between the flared ends of the spliced plates 14 and 15, and is held in a pivoted mounting therein by means of bolts
85 21, shield members 22 being provided on the rail section to guard against the ingress of dirt into the space between the flared ends of these splice plates. With this mounting of the section 20, it can be swung to line up
90 with either the rail section 2 or the rail section 4, and in the one position will be held against further outward swinging movement by the stop end 23 of clip 16, and in the other extreme of movement will be stopped
95 by the stop end 24 of clip 17.

While the extensions of the rail clips 16 and 17 will limit outward swinging movement of the swinging rail section 20, it is essential that means be provided to swing
100 this rail to each of its positions for use, and to lock the rail in alinement with the corresponding rail section 2 or 4. To accomplish this purpose I provide the sliding bars 25 and 26 on opposite sides of the
105 swinging rail section 20. These sliding bars are provided with wedge shoes 27 and 28 and 29 and 30 carried at their ends and sliding against the web flange of the rail section 20. Bearing rolls 31 and 32 are
110 mounted on the base plate adjacent slide bar 25, in position to be engaged by the

wedges 27 and 28 carried by this bar, and bearing rolls 33 and 34 are mounted in corresponding positions on the opposite side of the rail section 20; to engage the wedges 29 and 30 carried by bar 26. The rail swinging wedges 28 and 30 have locking bars 35 and 36 carried thereby to extend beyond the end of the swinging rail section and engage within the locking openings 37 of the spreader block 18.

With this arrangement of the wedge carrying slide bars, it will be seen that the swinging rail section is securely locked in place and is braced and held on opposite sides, when the parts are in the relation shown in Fig. 4. When it is desired to swing the rail section 20 to an opposite position and to lock this section in place, bar 25 must be slid or advanced toward the right hand side and bar 26 must be withdrawn toward the left hand side simultaneously. Such movement will cause the wedges 29 and 30 to travel down over the bearing rolls 33 and 34, and simultaneously will carry wedges 27 and 28 up onto bearing rolls 31 and 32, and consequently the swinging rail section will be moved to a position in which its swinging end is in alinement with rail section 4, locking bar 35 being extended to engage in the recess 31 of spreader block 18 and serving to lock the rail section with its end firmly engaged against the extension 24 of rail clip 17, and thus insuring perfect alinement of the swinging rail frog section 20 and the line rail section 4.

To accomplish this synchronous sliding of bars 25 and 26, I employ the mechanism illustrated in Fig. 1. The bell crank levers 38 and 39 are pivoted in suitable bearings 40 and 41 carried by the plates 7 and 8, which are mounted on the cross ties on opposite sides of the rail sections 9 and 10, and an adjustable rod 42 connects one arm of lever 38 with the slide bar 25, an adjustable rod 43 being connected with the slide bar 26 and with one arm of the bell crank lever 39. A link 44 connects the free ends or arms of the bell crank levers 38 and 39, and these parts are so mounted and connected that the rod 42 will draw when rod 43 pushes, and the reverse. An operating rod 45 is connected with this link 44, and may be extended to the usual switch operating pipe line, or to any other suitable operating mechanism.

It may be desirable to operate the switch mechanism from a switch stand, and to accomplish this purpose I provide a bell crank lever 46 which is mounted on a suitable bearing 47 carried by the plate 6. One arm of this lever 46 is provided with a slot 48, and a pin 49 carried by slide bar 26 is received in the slot 48. A rod 50 leads from the remaining arm of lever 46 to the operating mechanism of the switch box. Where the frog is to be swung through manipulation

of the lever 46 from the switch box, the movement of bar 26 will be transmitted to rod 43 and bell crank lever 39 to the link 44, and consequently the bar 25 will be shifted simultaneously with the shifting movement of bar 26 in the same manner as when operation is accomplished through operating rod 45.

From the foregoing it will be seen that I have provided a single end swinging frog which can be installed in rail lines in place of a fixed frog, without material alteration in the main and switch line rail installations, and without serious interruption to or delay of traffic over the lines.

While I have herein shown and described only one particular mounting of my improved swinging rail switch frog, and have suggested only certain possible changes and modifications in the mounting and control, it will be appreciated that changes and variations can be made in the form and construction and in the arrangement and mounting of the structure, and also in the operating and control mechanism, without departing from the spirit and scope of my invention.

I claim:

1. A swinging rail switch frog, comprising a rail section pivoted at one end, wedges on opposite sides of the swinging end of the rail, abutments adjacent such wedges, and means to slide said wedges longitudinally of the rail.

2. A swinging rail switch frog, comprising a rail section pivoted at one end, oppositely inclined wedges on opposite sides of the swinging end of the rail, abutments adjacent said wedges, and means for simultaneously moving said wedges longitudinally of the rail section in opposite directions.

3. A swinging rail switch frog, comprising a rail section pivoted at one end, wedges slidably mounted on opposite sides of the swinging end of the rail, abutments against which said wedges engage, means to slide the wedges, and locking means carried by said wedges.

4. A swinging rail switch frog, comprising a rail section pivoted at one end, slide bars on opposite sides of the swinging end of the rail section, oppositely inclined wedges carried by said slide bars engaging with the sides of the swinging end of the rail section, abutments against which the inclined faces of said wedges contact, and means to simultaneously slide said bars in opposite directions.

5. A swinging rail switch frog, comprising a rail section pivoted at one end, slide bars on opposite sides of the swinging end of the rail section, oppositely inclined wedges carried by said slide bars engaging with the rail, abutments against which the wedges contact, locking means carried by said

wedges, and means to simultaneously shift said slide bars in opposite directions.

6. A swinging rail switch frog, comprising a rail section pivoted at one end, slide bars on opposite sides of the swinging end of the rail section, a bell-crank operating lever for each slide bar, an operating connection between said operating levers to actuate these levers to simultaneously shift the slide bars in opposite directions, cam means carried by said slide bars, and abutments against which the cam means contact to swing the free end of the rail section as the slide bars are moved.

7. A swinging rail switch frog, comprising a rail section pivoted at one end, slide bars on opposite sides of the swinging end of the rail section, a bell-crank operating lever for each slide bar, an operating connection between said operating levers to simultaneously shift the slide bars in opposite directions, oppositely inclined wedges carried by the slide bars in contact with the sides of the swinging end of the rail section, and abutments against which the inclined faces of the wedges slide.

8. A swinging rail switch frog, comprising a base plate of sufficient length to receive the ends of main and switch rails, rail points mounted on the base plate in line with the main and switch rails at one side, splice plates by which the rail points are held upon the base plate, said splice plates being extended beyond and flared from the rail points, a swinging rail section mounted on the base plate within the flared portions of the splice plates, and means to swing said rail section on the base plate.

9. A swinging rail switch frog, comprising a base plate of sufficient length to receive the ends of main and switch rails, rail points mounted on the base plate in line with the switch and main rail ends at one end of said plate, a spreader block and rail clips by

which the main and switch rails are held in properly spaced relation on the opposite end of the base plate, said rail clips being extended to provide stops, splice plates by which the ends of the rail points are rigidly mounted on the base plate, said splice plates being extended beyond the rail points and flared in line with the rail clips holding the rails at the opposite end of the plate, a swinging rail section fitted between the flared ends of the splice plates, and means to swing the free end of the rail section within the limits confined by the extending ends of the rail clips and to lock the rail section in each of its extremes of movement.

10. A swinging rail switch frog, comprising an elongated base plate having the ends of main and switch rails bearing at opposite ends thereon, the rails at one end terminating in a point, a spreader block by which the rails at the opposite ends are held in spaced relation, rail clips by which the spaced rail ends are held and mounted upon the base plate, said clips being extended to provide stops, splice plates by which the rail point is secured on the base plate, said splice plates being extended and flared beyond the end of the point, a swinging rail section mounted in the flared ends of the splice plates, slide bars on opposite sides of the swinging end of the rail section, oppositely inclined wedges carried by said slide bars in contact with the sides of the rail section, abutments against which the inclined faces of said wedges contact, operating means to simultaneously slide said bars in opposite directions, and locking means carried by the wedges to engage with the spaced rail ends and hold the swinging rail sections in each of its adjusted positions.

In testimony whereof I hereunto affix my signature.

WILLIAM HARISON RIFE.