

Patented Feb. 22, 1910.

2 SHEETS--SHEET 1.

**Fig. I.**

**Fig. II.**

**Fig. III.**

**Fig. IV.**

**Fig. V.**

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RAILWAY SWITCH.  
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2 SHEETS—SHEET 2.

949,916.

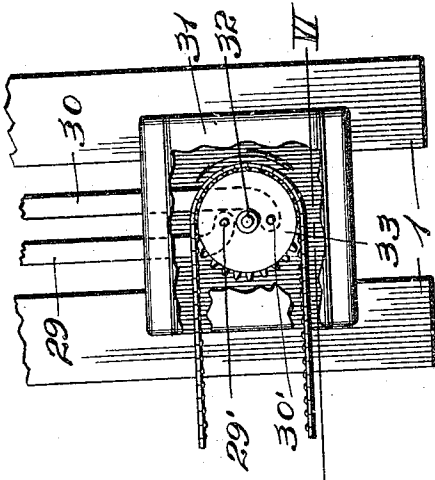


Fig. I.



Fig. II.

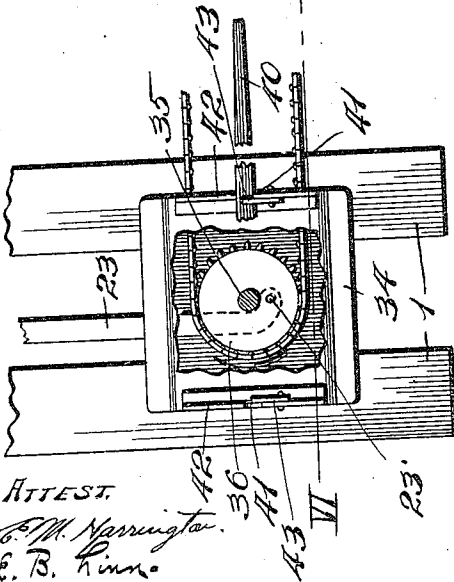
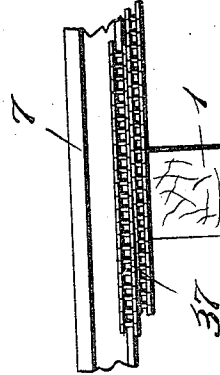


Fig. IV.

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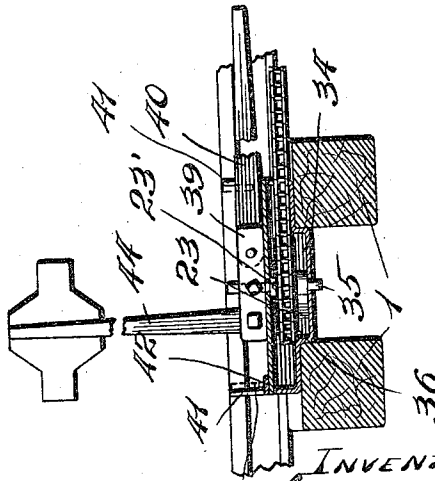


Fig. V.

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# UNITED STATES PATENT OFFICE.

SAMUEL L. SHELLENBERGER, OF DENISON, TEXAS.

## RAILWAY-SWITCH.

949,916.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed March 24, 1909. Serial No. 485,450.

*To all whom it may concern:*

Be it known that I, SAMUEL L. SHELLENBERGER, a citizen of the United States of America, residing at Denison, in the county of Grayson and State of Texas, 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 that description of railway switches in which the main track rails are unbroken at the locations of the switches, whereby the continuity of the main track rails is preserved, and in which the switching is accomplished through the medium of movable switch plates which are shifted into positions that will cause them to overlie the main track rails for the purpose of directing the wheels of cars from the main track to a branch track or siding, or vice versa.

Figure I is a top or plan view of my switch with portions of the main line and branch tracks intermediate of the transfer plate sections and the frog plate sections broken out. Fig. II is an enlarged vertical cross section taken on line II—II, Fig. I. Fig. III is an enlarged vertical cross section taken on line III—III, Fig. I. Fig. IV is an enlarged vertical longitudinal section taken on line IV—IV, Fig. I. Fig. V is an enlarged top or plan view of the switch operating mechanism with the boxes of this mechanism and the connection between these boxes partly broken out. Fig. VI is a vertical longitudinal section taken on line VI—VI, Fig. V.

In the accompanying drawings: 1 designates the ties of a railway track, 2 and 3 the rails of a main line of track which are unbroken at the switch.

4 is an intermediate rail of a branch track between the main line rails that extends obliquely between these rails and terminates at 5 in juxtaposition with the main line rail 2, and at 6 in juxtaposition to the main line rail 3.

7 is an outer branch track rail that extends obliquely to the main line rails 2 and 3 and terminates at 8 in juxtaposition to the main line rail 3.

9 is an outer branch track rail parallel with the branch track rail 7 and which terminates at 10 in juxtaposition to the main line rail 3 at the frog of the switch, the rail

9 being disposed in alinement with the intermediate branch track rail 4.

All of the rails thus far referred to are suitably mounted upon the ties 1 and are held in stationary positions thereon.

11 designates chairs for the support of movable switch plates. These chairs, which are preferably of inverted U-shape in cross section, are mounted upon and extend longitudinally of said ties, and each chair is provided with a slot 12 that extends longitudinally of the top of the slotted chair, (see Fig. III.) There is one series of the slotted chairs located adjacent to the inner side of the main line rail 2 at the transfer point of the switch; another series of slotted chairs located adjacent to the outer side of the main line rail 3 at the transfer point of the switch; a third and fourth series of slotted chairs located at opposite sides of the main line rail 3 at the frog of the switch and occupying positions between the terminations of the intermediate branch track rail 4 and the outer branch track rail 9.

13 designates a transfer switch plate pivoted at one end at 14 at the end 5 of the intermediate branch track rail 4 and movable to and from the adjacent main line rail 2 upon the slotted chairs 11 beneath it.

15 is a transfer switch plate having one end pivoted at 16 at the end 8 of the outer branch track plate 7, this plate 15 being movable to and from the adjacent main line rail 3 upon the slotted chairs 11 beneath it. Each of the movable switch plates 13 and 15 is provided with a base flange at its outer side that rests upon the slotted chairs beneath said rail, and with a head at its inner side that is adapted to be moved into a position to overlie the main track rail next adjacent to said movable rail. The movable switch plates 13 and 15 are held from displacement upon the slotted chairs on which they rest by retaining bolts 17 that are seated in slots extending longitudinally of the base flanges of the switch plates and are operable in the slots 12 extending longitudinally of the slotted chairs, the object in providing the slots in the switch plate flanges being to prevent binding or cramping of the retaining bolts in the base flanges due to expansion or contraction of the switch plates, while the slots in the slotted chairs permit movement of the retaining bolts in order that the movable switch plates may be shifted to and from the main line rails 2

and 3. The movable switch plates 13 and 15 are preferably united by one or more connecting rods 18. The movable switch plates 13 and 15 are sloped or inclined from their points to a distance, say, of three feet from their points in order that car wheels may ride onto and off the heads of said switch plates when they are in positions overlying the main line rails without jarring action, and the depth of the heads of these switch plates is equal to or greater than the depth of the flanges of the car wheels that may traverse the switch.

19 designates a head rod that extends transversely of the switch, this rod being pivoted at 20 to the movable switch plate 13 and at 21 to the movable switch plate 15. The head rod preferably has incorporated therein an adjusting sleeve 22, (Figs. I and III,) whereby the length of the rod may be adjusted to properly position the movable switch plate relative to each other in order that they may be simultaneously carried to the main line rails 2 and 3.

23 is a connecting rod pivoted to the outer end of the head rod 19 and in which is arranged an adjusting sleeve 24. This connecting rod is operated by means to be hereinafter described.

25 designates a movable frog plate having one end pivoted at 26 and located at the end 6 of the intermediate branch track plate 4. This frog plate is of a shape similar to the movable switch plates 13 and 15 and is adapted to be shifted so that it will overlie the main line rail 3 in alinement with the branch track rails 4 and 9.

27 is a movable frog plate having one end pivoted at 28 adjacent to the end 10 of the outer branch track rail 9 and the free end of which is adapted to be shifted so that it will overlie the main line rail 3 and in alinement with the movable frog plate 25, thereby providing a runway for car wheels to cross said main line rail in traversing the branch track rails 4 and 9 and the movable frog plates 25 and 27. The frog plates are mounted upon and held to the slotted chairs 11 beneath them in a manner similar to that in which the transfer switch plates 13 and 15 are mounted upon and held to the slotted chairs on which they rest.

29 and 30 are rods pivoted respectively to the frog plates 25 and 27 to each of which said frog plates may be moved in opposite directions each time they are shifted for the purpose of either carrying said frog plates into alinement with each other to overlie the main line rail 3 in closing the switch, or to separate them from said main line rail when the main line of railway track is to be used for the direct passage of a train past the switch.

31 designates a box mounted on the track ties opposite the frog of the switch, (Figs.

I and V,) and in which is mounted a vertical shaft 32 that has fixed to it a sprocket or operating wheel 33. The connecting rods 29 and 30 are pivoted respectively to this operating wheel at 29' and 30', the pivot points of the connecting rods being preferably at diametrically opposite points, (as illustrated in Fig. V,) in order that when the operating wheel is turned one-half of a revolution, the connecting rods will be shifted correspondingly for the purpose of moving the rod 29 in one direction and the rod 30 in an opposite direction to either carry the frog plates into alinement with each other to overlie the main line rail 3, or to retract said frog plates to the positions illustrated in Fig. I.

34 designates a box mounted on the track ties opposite the movable transfer switch plates 13 and 15 at the location of the connecting rod 23 attached to the head rod 19. The box 34 has journaled in it a vertical shaft or staff 35, and this staff has fixed to it a sprocket or operating wheel 36 to which the connecting rod 23 is pivoted at 23', (see Fig. V.)

37 is an operating flexible connection illustrated in the form of a chain, but which may be a cable or other suitable flexible appliance, and which is operable upon the operating wheels 33 and 36 in order that motion imparted to the operating wheel 36 may be communicated therefrom to the operating wheel 33. The operating connection 37 is crossed, (as illustrated in Figs. I and V,) for the purpose of providing for rotation of the operating wheel 33 in a direction the reverse of that in which the operating wheel 36 is rotated, and this connection preferably has incorporated therein take-ups 38 which are shown in the drawings as turn-buckles.

39 is a head fixed to the staff 35 and in which is pivotally mounted a lever 40 by which said staff may be rotated to rotate the operating wheel fixed thereto. The lever 40 is adapted to be lowered into vertical notches 41 in uprights 42 surmounting the box 34, whereby said lever and the staff to which it is attached may be held from movement when the operating wheels of the switch mechanism have been rotated in either closing or opening the switch.

43 are dogs pivoted to the uprights 42 and adapted to be moved into positions over the lever 40, when it is seated in the notches, for the purpose of retaining said lever from vertical movement in order that the switch mechanism may be held from movement, and the movable switch plates and frog plates actuated thereby may be prevented from displacement after the switch has been set.

44 designates a target detachably mounted in the head 39 carried by the staff 35, this target being made detachable from said head in order that it may be dispensed with in in-

stances where it is desired to place the operating wheel 36 and the parts associated with it in close proximity to one of the rails of the railway track.

5 45 designates sloping guards located at the frog crossing of the switch, and into alinement with which, the frog plates 25 and 27 are moved when they are out of service, (as seen in Figs. I and IV.) These  
1 guards serve to prevent any object that may trail from a railway car catching against the free ends of the frog plates. The guards are mounted upon chairs 46 that extend transversely of two ties adjacent to the free  
15 ends of the frog plates.

I claim:—

1. In a railway switch, the combination with main line track rails and branch track rails, of a pair of switch plates pivotally mounted  
20 at ends adjoining ends of said branch track rails and having heads on their inner sides shiftable into positions over said main line rails, a pair of frog plates pivotally mounted adjacent to one of said main line rails  
25 and in the line of one of said branch track rails at opposite sides of said main track rail, the frog plates having heads on their inner sides shiftable in opposite directions into positions over said main track rail,  
30 means for shifting said switch rails and frog rails simultaneously to carry their heads into positions over the main track rails, slotted chairs on which said switch plates and frog plates are mounted, and guide  
35 members seated in said switch plates and frog plates and operable in said slotted chairs.

2. In a railway switch, the combination with main line track rails and branch track  
40 rails, of a pair of switch plates pivotally mounted at ends adjoining ends of said branch track rails and shiftable into posi-

tions over said main line rails, a pair of frog plates pivotally mounted adjacent to one of  
45 said main line rails and in the line of one of said branch track rails at opposite sides of said main track rail, the frog plates being shiftable in opposite directions into positions over said main track rail, means for  
50 shifting said switch plates and frog plates simultaneously to carry them into positions over the main track rails, chairs on which said switch plates and frog plates are mounted, guide members seated in said switch  
55 plates and frog plates and operable in said chairs, said plates being slotted longitudinally to permit freedom of movement of said guide members.

3. In a railway switch, the combination with main line track rails and branch track  
60 rails, of a pair of switch plates pivotally mounted at ends adjoining ends of said branch track rails and shiftable into positions over said main line rails, a pair of frog plates pivotally mounted adjacent to one of  
65 said main line rails and in the line of one of said branch track rails at opposite sides of said main track rail, the frog plates being shiftable in opposite directions into positions over said main track rail, operating  
70 rods connected to said switch plates, operating rods connected to said frog plates, an operating wheel to which the operating rod of said switch plates is connected, an operating  
75 wheel to which the operating rod of said frog plates is connected, and means of connection between said operating wheels whereby all of said plates may be shifted when one of said operating wheels is rotated.

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In the presence of—

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