

S. NICHOLS.
RAILROAD SWITCH.

Patented Mar. 27, 1883.



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SIMEON NICHOLS, OF LISBON, MAINE, ASSIGNOR OF ONE-FOURTH TO
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RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 274,814, dated March 27, 1883.

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To all whom it may concern:

Be it known that I, SIMEON NICHOLS, of Lisbon, in the county of Androscoggin and State of Maine, have invented a new and Improved Railroad-Switch, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved railroad-switch which can be operated automatically or by hand.

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

Figure 1 is a plan view of my improved switch, showing it closed for the main line and open for the siding. Fig. 2 is a longitudinal sectional elevation of the same on the line *xx*, Fig. 1. Fig. 3 is a cross-sectional elevation of the same on the line *yy*, Fig. 1. Fig. 4 is a cross-sectional elevation of the same on the line *zz*, Fig. 1.

The main-line rails A and the siding-rails B are fixed and the switch-rails C are movable. The ends of the main-line rails A rest in recesses *a* in chairs D, fastened on a sleeper, E, and the ends of the siding-rails B rest in recesses *b* in the chairs D, which recesses *b* are parallel with and adjoining the recesses *a*. The ends of the rails A and B extend about to the middle of the recesses. The ends of the movable switch-rails C rest either in the recesses *a* or *b*. The ends of the switch-rails C rest on and are attached to a cross-bar, F. The wider end, G', of a wedge-shaped frame, G, has a bar, O, fastened across it, the ends *o o* of which move in slots *o' o'* of the switch-rails C. The wider end of the frame G is at the right of the sleeper E, and the pointed end of the frame is at the left of the sleeper E and between the adjoining main and siding rails A and B, which pointed end of the frame G is pivoted to a sleeper, or to a block, H', by means of a heavy bolt or pintle, H, fitting loosely in a vertical aperture in the block or sleeve H'. The pivoted pointed end of the frame G is from ten to eleven feet from the sleeper E. About midway between the pointed end of the frame G and the sleeper E this frame G rests upon a transverse fulcrum-bar, J, a short distance below the rails, on which bar the frame G can be tilted. A wedge-shaped block, K, or flanged plate is secured to the outer side of each shank

of the frame G, between the pivot H and the bar J, which blocks K are of such shape that their outer surfaces can fit closely against the inner or adjoining surfaces of the adjoining main and siding rails A B, between which the frame G is pivoted. A hand-lever, L, is linked to the outer end of the bar F. A foot-lever, M, is pivoted in a standard, N, secured in the ground at the outer side of the outer rail C, the inner short arm of the lever M taking beneath cross bar F to lift the switch-rails C and frame G.

H² H² represent cross-bars fixed in recesses of the frame G, and upon each of these bars bears the free end of a spring, J', which is held fast to a sleeper. The free ends of the spring bear with sufficient force upon the cross-bars to prevent the frame from jumping, while they allow it to be raised or moved laterally under the spring.

The operation is as follows: If the switch is closed for the main line and open for the siding, as shown—that is, if a train cannot run from the siding-rails B upon the switch-rails C—and if a train then approaches on the siding in the direction of the arrow *a'*, the flange of the wheel on the inner siding-rail B runs on the block K, resting against the inner side of this rail, and thereby tilts the frame G—that is to say, the pivoted end of the frame G is depressed and the wide end is raised, whereby the ends of the switch-rails C will be raised out of the recesses *a* in the chairs D. When the wheel has run over this block K it drops in between the inner edge of the siding-rail B and the adjoining shank of the frame G and pushes this frame sidewise in the direction of the arrow *b'* until the other block K strikes against the inner edge of the outer main rail A. The ends of the switch-rails C will also be moved in the direction of the arrow *b'*, and will now be over the recesses *b* in the chairs D. By this time the weight of the wheels will have been removed from the blocks K, and the wide end of the frame G drops and the pointed end will be raised and the ends of the switch-rails C will drop into the recesses *b* of the chairs D. The switch will now be closed for the siding and open for the main line—that is, only those trains coming from the siding can run on the switch-rails. As the block K, that has rested against the inner siding-rail

B has been moved from the rail by the first wheel, the following wheels cannot come in contact with this block and cannot interfere with the switch, which remains set. If, now, 5 a train comes from the main line in the direction of the arrow a' , the first wheel on the outer main rail tilts the frame G, thereby raising the ends of the switch-rails C, and pushes the frame G and the rails C in the reverse direction of the arrow b' and the switch-rails drop 10 into the recesses a . The switch is thus operated automatically by all trains running on the main rails or siding in the direction of the arrow a' . If the switch is to be set for trains 15 running in the reverse direction of the arrow a' , the levers L and M must be used. The frame G and the ends of the switch-rails C are raised by means of the levers M, and the wide end of the frame G and the rails C are moved 20 in the direction of the arrow b' , or in the reverse direction of the arrow b' , by means of the lever L.

Having thus described my invention, what I claim as new, and desire to secure by Letters 25 Patent, is—

1. The combination, on a railroad, with the main, siding, and switch rails, of a frame pivoted to swing horizontally at one end between the inner siding and inner main rails, provided with a connection at or near its other 30 end with the switch-rail, arranged to rock or tilt vertically upon a transverse line between its ends, and having between said swinging points side extensions adapted to come under the wheel-flanges of the trucks, whereby the 35 switch may be operated automatically, as described.

2. In railroad-switches, the combination, with a frame, G, pivoted to tilt on rod J, of 40 blocks or side extensions, K K, attached to the outside of the bars of said frame, whereby the wheel-flange of the trucks will tilt said frame, as described.

3. In a switch, the combination, with the 45 main rails A, the siding-rails B, and the switch-rails C, of the vertically and laterally swinging frame G, the blocks K, attached to the same, and the bar J, forming the fulcrum for the vertical movements of the frame G, substantially as herein shown and described, and 50 for the purpose set forth.

4. The tilting frame G, combined with the switch-rails C by means of a cross-bar, O, attached rigidly to the bottom of frame, and passing, with its ends, through longitudinal 55 slots in the rails, whereby the rails may be lifted, as described.

5. In a switch, the combination, with the main rails A, the siding-rails B, and the switch-rails C, of the vertically and laterally swinging frame G, the blocks K, the bar J, and the 60 chairs D, provided with recesses a and b , substantially as herein shown and described, and for the purpose set forth.

6. In a switch, the combination, with the 65 main rails A, the siding-rails B, and the switch-rails C, of the vertically and laterally swinging frame G, the blocks K, the rod J, the pin- tle or pivot H, and the vertically-apertured block or sleeper H', substantially as herein 70 shown and described, and for the purpose set forth.

7. In a switch, the combination, with the main rails A, the siding-rails B, and the switch-rails C, of the vertically and laterally swinging frame G, the rod J, the bars F and O, and 75 the levers L and M, substantially as herein shown and described, and for the purpose set forth.

8. In a switch, the combination, with the 80 main rails A, the siding-rails B, and the switch-rails C, of the vertically and laterally swinging frame G, the blocks K, the rod J, and the sleeper E, provided with recesses a b , substantially as herein shown and described, and for 85 the purpose set forth.

9. The cross-bars H^2 H^2 , spring J, and sleeper-bolt K, in combination with the frame G, whereby the latter is prevented from jumping, and yet allowed to move laterally as well as 90 vertically, as described.

10. The combination, with the switch-rails C C, of the cross-bar F, carrying switch-rails, and the levers L M, connected with said cross-bar, whereby a man may lift the rails out of 95 the recesses of the chairs by a pressure of his foot and laterally move them with one or both hands in quick succession, as described.

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Witnesses:

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