

(No Model.)

P. NOLAN.  
RAILROAD SWITCH.

No. 330,509.

Patented Nov. 17, 1885.

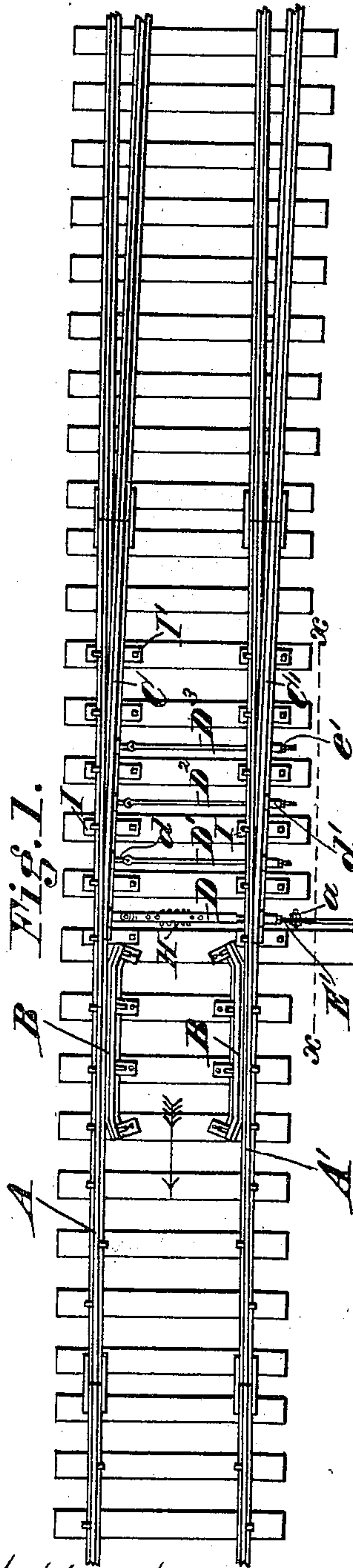


Fig. 1.

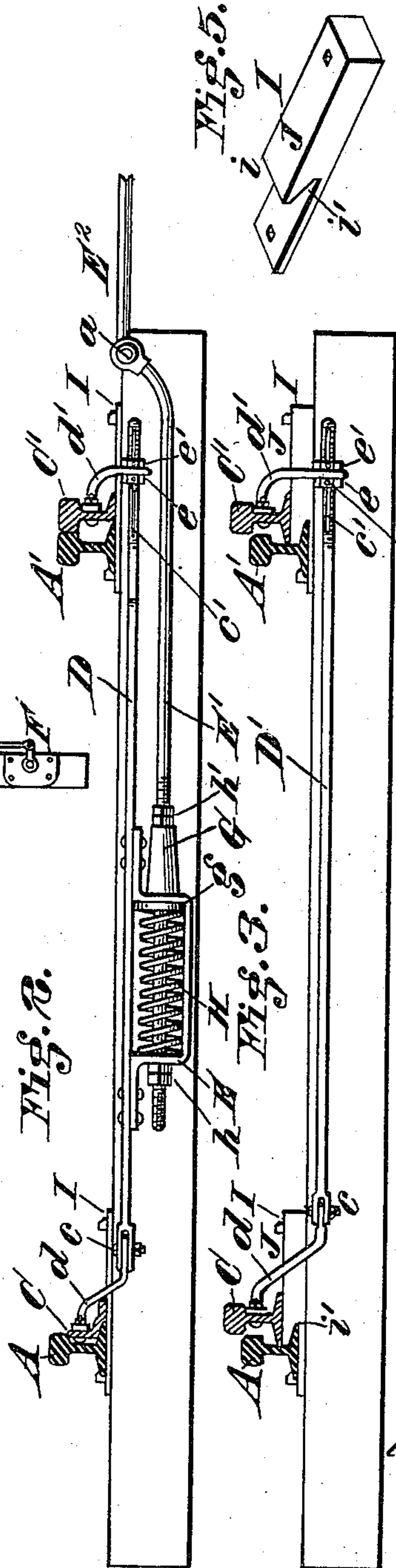


Fig. 2.

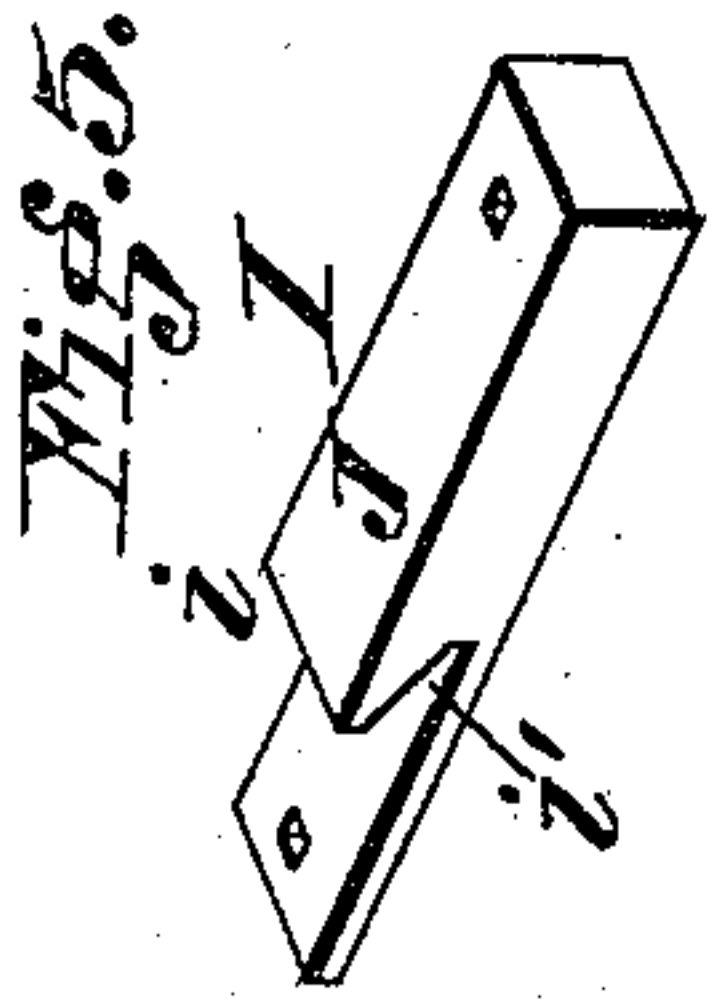


Fig. 5.

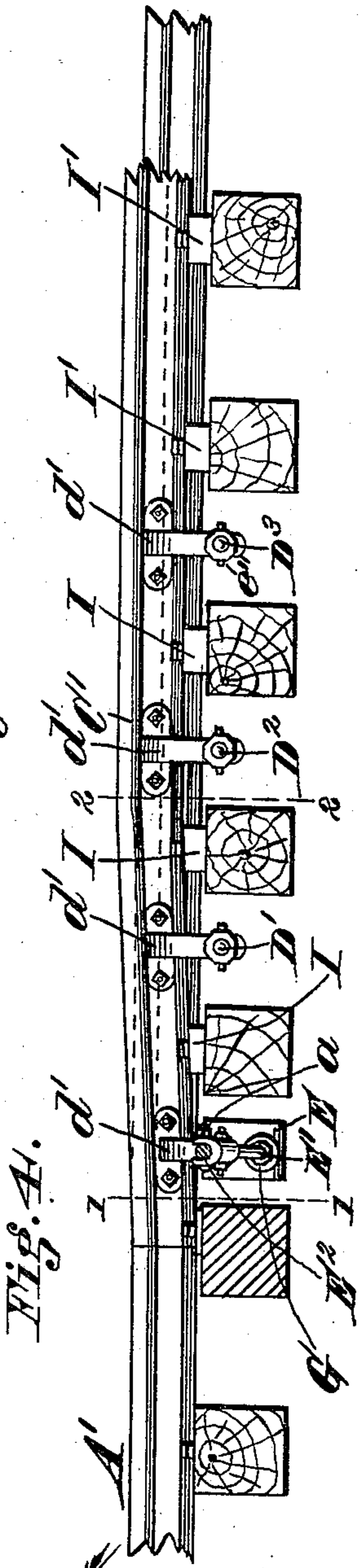


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 330,509, dated November 17, 1885.

Application filed May 9, 1885. Serial No. 164,957. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK NOLAN, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification.

My invention relates to improvements in railroad-switches, more particularly to that class of switches in which the pivoted tongue-rails used in connection with the main track are inclined upward to raise the tread of the car-wheels passing over them and lift the flanges thereof above the plane of the main rails at the point of transference.

My invention consists in a railway-switch composed of two continuous main-track rails and two movable switch-rails, one of which switch-rails is mounted inside the main track and the other outside thereof, both sets of rails, at the opening leading into the siding, being mounted upon bracing and slide chairs of gradually-ascending heights to bring said switch-rails at an inclination, and said switch-rails being connected by means of continuous rods firmly attached at one end to the inner switch-rail, and screw-threaded and slotted at their opposite ends to receive perforated nuts and suitable locking pins or keys for connection with arms on the outer switch-rail, whereby the said movable rails can be readily adjusted to or from each other to suit different gages of track, all as hereinafter fully described.

In the accompanying drawings, Figure 1 is a plan view of a railroad-track, showing the main track and a switch leading into a siding and embodying my invention. Fig. 2 is a transverse sectional elevation of my switch on line 1 1 of Fig. 4, at the point of the movable rails, showing the safety connecting-rod. Fig. 3 is a similar view on line 2 2 of Fig. 4, taken at the point where the flange of the wheel clears the main track. Fig. 4 is an enlarged longitudinal side elevation of my improvement on line *xx*, Fig. 1, showing the relative arrangement of the outer switch-rail and the adjoining main-track rail. Fig. 5 is a detail perspective view of one of my improved combined bracing and slide chairs.

A A' represent two rails composing the main track, being shown continuous, or, in

other words, without an opening or break therein at the point where the flange of the wheel crosses or clears the rail A' of said track.

B B represent the customary guard-rails located inside the main-track rails, immediately ahead of the points of the movable switch-rails.

C C' represent the movable switch-rails leading into a siding. The pivoted rail C lies adjacent the rail A within the main track, and its co-operating pivoted rail C' lies adjacent the rail A' without the main track.

D D' D<sup>2</sup> D<sup>3</sup> represent rods or bars connecting the movable rails C C'.

*d d'* represent arms depending from the outer sides of the rails C C'. The arms *d* are attached by means of bolts to the rail C, and the arms *d'* are similarly attached to rail C'.

One end of each of the connecting-rods D D' D<sup>2</sup> D<sup>3</sup> is forked and adapted to fit the free end of each of the depending arms *d*, both said ends being suitably united by a bolt, *c*. The opposite ends of said connecting-rods are screw-threaded, and preferably provided with slots *c'*. The free ends of arms *d'* are perforated, to receive the screw-threaded ends of the connecting-rods.

*e e'* represent nuts on the screw-threaded ends of the connecting-rods, one being either side the said arms *d'*, and turned closely in place against the arms. Nuts *e e'* are perforated to receive pins or keys *e''*, which pass through the slots *c'* in the connecting-rods to lock said nuts against accidental turning.

E represents a box or frame suitably secured to the under side of the flat portion of connecting-rod D.

E' is a rod lying beneath rod D and running parallel therewith.

E<sup>2</sup> is a rod connected by a bolt, *a*, with the rod E', and connecting the same with a switch-stand, F.

G represents a conical sleeve fitting upon the rod E' and having a flange, *g*. This sleeve lies within an opening in the box E, with its flange *g* bearing against the inner wall of said box.

H represents a spiral spring surrounding said rod E' and located within box E. The free end of the rod E' is screw-threaded beyond the point where the sleeve G is designed to



fit, so as to receive the jam-nuts  $h$   $h'$ . The nuts  $h$  are turned up closely against one end of box E, and the nuts  $h'$  are turned up closely against the outer end of sleeve G.

5 I I' are combined bracing and slide chairs or plates, upon which the movable rails slide, and upon which the adjacent rails of the main track are mounted, and against which they are braced. The chairs I are of gradually-  
 10 ascending height, beginning with the ones at the point ends of the tongue-rails and ending at the point where the flange of the wheel clears the main track, as shown in Fig. 4, thus causing a similar elevation or inclination of  
 15 said tongue-rails, so that the wheels passing from the main track into the siding can safely and readily clear said main track without making an opening or break therein. The chairs I' are shown as of uniform height; but  
 20 it is obvious that they can be of gradually-descending height toward the pivotal end of the movable rails, so as to bring said ends on the same plane as the permanent rails of the siding. Both tongue-rails being mounted in  
 25 the same manner and at the same inclination, it is clear that the flange of the wheel passing along the inner edge of the tongue-rail C will effectually guide the flange of the wheel at the opposite end of the axle, so that it will  
 30 climb the main-track rail A' and pass along the inner edge of the tongue-rail C'. The combined brace and slide chairs I I' are shouldered at  $i$  and notched at  $i'$ , the shoulder  $i$  coming in contact with the web of the main-track rail  
 35 to serve as a brace, and the flange of the said rail fitting snugly within the notch  $i'$ , which is of a like configuration to said flange, as shown in Figs. 3 and 5. The usual spike-holes are made in the chair for securing it to  
 40 the sleeper. The movable switch-rails slide upon the elevated body J of said chair.

In the operation of my device the wheels passing over the main track are guided into the siding when the tongue-rails are in the  
 45 closed position against the permanent main-track rails, as shown in Fig. 1. Said switch-rails are held in the same position, as customary, when the cars pass into the main line from the siding, and the tread of the wheels  
 50 is the same, except that they are descending the inclined tongue-rails instead of ascending them.

In the operation of the rods, which join the two tongue-rails so that they move in unison,  
 55 the nuts on the rods can be readily turned in either direction for different gages or widths of track by withdrawing the keys or pins  $e''$ .

This is an important feature of my invention, as it is customary to allow extra width on curves, which has to be changed to meet the  
 60 gage in order to suit all other switches.

The safety-rod device connecting the switch-stand with the switch or movable rails is so arranged that it is impossible to displace the  
 65 switch to cause accidents. The connecting-rod at the point end of the tongue-rails is free to co-operate with said tongue-rails when the train is moving over the main track in the  
 70 direction of the arrow shown in Fig. 1; and the spring H serves to hold the tongue-rails firmly against the main-track rails when the switch is closed and in position for a train to take the siding.

I claim—

1. A railway-switch composed of two con-  
 75 tinuous permanent main-track rails, A A', and two movable tongue or switch-rails, C C', both sets of rails, at the opening leading into the siding, being mounted upon combined  
 80 bracing and slide chairs, I I'  $i$   $i'$  J, of gradually-ascending heights, with one of said switch-rails inside the main track and the other outside thereof, and both connected by  
 85 means of rods or bars D D' D<sup>2</sup> D<sup>3</sup>, each formed of one piece of metal, and suitably attached at one end to rail C and screw-threaded and  
 90 slotted at the opposite end for receiving perforated nuts  $e$   $e'$  and pins or keys  $e''$ , and connected with the outer tongue-rail by arms  $d'$ , whereby said switch-rails can be readily ar-  
 95 ranged or set at a greater or less distance apart to suit different gages of track, and all the said parts being constructed, arranged, and adapted to operate substantially as and for the purpose specified.

2. In a railway-switch, the combination, with the movable switch-rails C C', provided with  
 100 arms  $d$   $d'$ , of rods or straps D D' D<sup>2</sup> D<sup>3</sup>, each formed of one continuous piece of metal forked at one end to engage said arms  $d$  on rail C, and screw-threaded and slotted at their opposite  
 105 ends to receive perforated nuts  $e$   $e'$  and pins or keys  $e''$ , whereby both said rails are connected together and adapted to be set at a greater or less distance apart to suit different gages of track, substantially as herein set forth.

In testimony whereof I have hereunto set my hand.

PATRICK NOLAN.

Witnesses:

JOHN E. JONES,  
 JOSEPH LITTELL.