

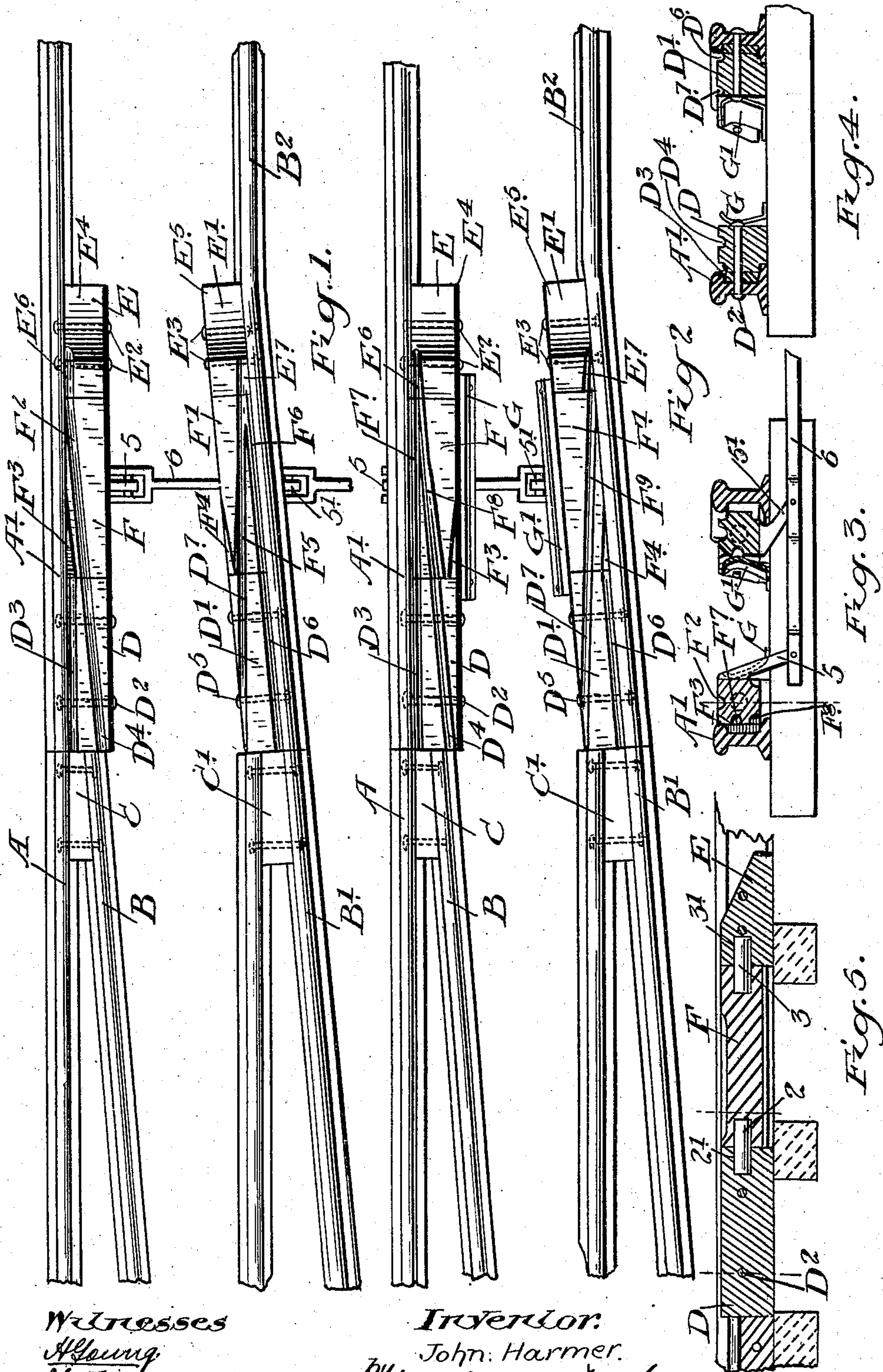
No. 854,944.

PATENTED MAY 28, 1907.

J. HARMER.

# RAILWAY SWITCH.

APPLICATION FILED MAR. 11, 1907.





# UNITED STATES PATENT OFFICE.

JOHN HARMER, OF TORONTO, ONTARIO, CANADA.

## RAILWAY-SWITCH.

No. 854,944.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed March 11, 1907. Serial No. 361,785.

*To all whom it may concern:*

Be it known that I, JOHN HARMER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Railway-Switches, of which the following is the specification.

My invention relates to improvements in railway switches, and the object of the invention is to devise a switch, which may be moved readily and without danger of being choked and rendered inoperative by ice and snow, and also obviate anything, which may be dragging or hanging from the train, coming in contact with the switch and rendering it inoperative by catching on the open tongue and dragging it out of position and it consists essentially of a switch provided with stationary blocks, one at each side of the point of the switch and secured to the rails, and turnable blocks journaled in the stationary blocks, one in proximity to each rail, the stationary blocks and turnable blocks being both grooved, one pair of stationary blocks being grooved at the upper side and the turnable blocks on the upper and inner sides being grooved to form the requisite guiding points, the turnable blocks being connected to the switch operating rod or bar and the parts being otherwise constructed in detail and operating as hereinafter more particularly explained.

Figure 1, is a plan view showing my improved switch with the turnable grooved blocks set with the one grooved operative side up. Fig. 2, is a similar view with the turnable blocks set with the other grooved operative side up. Fig. 3, is a cross section of the track and the turnable blocks. Fig. 4, is a cross section through the track and the stationary blocks. Fig. 5, is an enlarged sectional detail showing the means of journaling the turnable blocks.

In the drawings like letters of reference indicate corresponding parts in each figure.

A A' are the stationary rails of the main line and B B' are the stationary rails of the siding. The outer rail B' extends to the main line where it is off-set to lie parallelly to the opposite rail.

C C' are blocks, which fit between the end of the siding rail and the main line rail being bolted or otherwise fastened between the same as indicated by dotted lines. The blocks C and C' are located below the level of

the rails, so that the web of the wheels of the cars will not contact with them. The blocks C and C' hold the rails securely in position and prevent any liability of their spreading.

D and D' are two blocks located opposite each other, the block D being secured by bolts D<sup>2</sup> to the alined main line rail A', and the bolts extending through the block and the webs of the rails. The block D is provided with a groove D<sup>3</sup> adjacent to the tread of the rail A' and a groove D<sup>4</sup>, the edge of which next the groove D<sup>3</sup> being alined with the side of the tread of the rail B remote from the block C. The block D' is secured to the siding rail B' by bolts D<sup>5</sup> passing through the block and the web of the rail. The block D' is provided with a groove D<sup>6</sup>, which lies adjacent to the tread of the rail B' of the siding and a groove D<sup>7</sup>, the edge of which next the groove D<sup>6</sup> is alined with the edge of the tread of the rail A' remote from the block C'.

E and E' are blocks secured to the rails A' and B<sup>2</sup> respectively by bolts E<sup>2</sup> and E<sup>3</sup> respectively. The block E' terminates at the bend in the rail B<sup>2</sup>. Both blocks E' and E<sup>2</sup> are provided with depressed portions E<sup>4</sup> and E<sup>5</sup>. The block E is provided with a groove E<sup>6</sup> parallel and adjacent to the rail A' and merging into the depression E<sup>4</sup>. The block E<sup>5</sup> is provided with a groove E<sup>7</sup> merging into the depression E<sup>5</sup>, the inner edge of the groove being parallel to the rail B' and the outer edge parallel to the main line rail.

F and F' are the turnable blocks. The turnable block F at one side is provided with a groove F<sup>2</sup>, which is alined with the groove D<sup>4</sup> in the block D and terminates in the groove E<sup>6</sup> in the block E, and it is also provided with a groove or depression F<sup>3</sup> at the corner next the groove D<sup>3</sup> and extending parallelly to the groove F<sup>2</sup>.

The turnable block F' is provided at one side as shown in Fig. 1, with a corner groove or depression F<sup>4</sup> obliquely arranged across the corner and a groove F<sup>5</sup> alined with the groove D<sup>7</sup> and a converging groove F<sup>6</sup> in alinement with the groove D<sup>6</sup> and located adjacent to the rail B<sup>2</sup> both grooves terminating in the groove E<sup>7</sup> made in the block E'. The turnable block F (see Fig. 2) is provided on the upper side, which in Fig. 1, is the side next the rail as will be understood in reference to Fig. 3, with a longitudinal groove F<sup>7</sup>, which lies in Fig. 2, parallel to the rail and an obliquely arranged groove F<sup>8</sup>, which is



aligned with the groove  $D^4$  in the block  $D$ . The corner cut-away groove or indenture  $F^3$  is in this case thrown to the inside.

The turnable block  $F'$  on the side shown in Fig. 2, which is the side remote from the rail in Fig. 1, is provided with the groove  $F^9$  obliquely arranged and on a line with the groove  $D^7$  of the block  $D'$  and terminating in the groove  $E^7$  of the block  $E'$ . The turnable block  $F'$  is also provided with the obliquely cut corner groove  $F^4$ , which on this side is adjacent to the rail  $B'$  forming a continuation of the groove  $D^6$  in the block  $D'^1$ . All the grooves in these blocks are of such a depth as will allow the flange of the wheel passing freely therethrough without riding on the bottom of the groove. The turnable blocks  $F$  and  $F'$  are provided with end pins 2 and 3 whereby they are journaled in recesses  $2'$  and  $3'$  in the stationary blocks hereinbefore referred to.

$G$  and  $G'$  are spring plates, which are secured to the sleepers or other fixed supports and normally press against the sides of the blocks remote from the rails.

5 and  $5'$  are arms secured to the turnable blocks  $F$  and  $F'$  respectively, and 6 is the operating rod of the switch to which the arms are pivotally connected and which serve by any suitable switch mechanism, such as is commonly employed, to change the position of the blocks from one operating side to the other. It is essential that the switch be a spring switch, so that the blocks may be turned by the flanges of the wheel compressing the spring in the switch, if it be set wrong.

Having now described the principal parts involved in my invention I shall briefly describe its operation and utility. In order to operate my switch it is simply necessary to move the bar 6 similarly to the usual bar for operating switches, thereby serving to turn the blocks  $F$  and  $F'$  on their spindles 3 against the springs. When the blocks are being turned the snow is necessarily prevented from entering beneath the blocks on account of the spring plates or springs fitting closely against the blocks and yielding only to allow them to turn.

In Fig. 1, I show the turn blocks  $F$  and  $F'$  set, so that a train will pass from right to left on to the siding instead of on to the main line and may likewise pass from the siding on to the main line from left to right or straight along the main line from left to right, the edge of the groove yielding, so as to partially turn the block as the flange of the rail passes along side of it.

In Fig. 2, I show the turnable blocks  $F$  and  $F'$  so set that a train will pass from right to left along the main line instead of on to the siding and from left to right will pass along the main line or from the siding on to the main line, the turnable block  $F'$  in this instance being forced slightly around in order

to permit the flanges of the wheel passing the sides of the groove  $F^1$ .

It will be seen from my construction of switch, that it is very simple, is readily operated, is not likely to be filled up with ice and snow and once set cannot be displaced and the danger of accident from open switches entirely obviated.

What I claim as my invention is:

1. In a railway switch, the combination with the main line and siding, the inner rail of each terminating abruptly and the outer rails extending continuously, of turnable blocks located one opposite the abruptly terminated siding rail adjacent to the main line rail and one opposite the abruptly terminated main line rail and each provided with grooves on two sides, and means for turning the blocks simultaneously whereby the train may be directed along the main line from the grooves on the one side of the block and on to the siding by the grooves on the other side of the block when turned as and for the purpose specified.

2. In a railway switch, the combination with the main line and siding, the inner rails of each terminating abruptly and the outer rails extending continuously, of turnable blocks located one opposite the abruptly terminated siding rail adjacent to the main line rail and one opposite the abruptly terminated main line rail and each provided with grooves on two sides, means for turning the blocks simultaneously whereby the train may be directed along the main line from the grooves on the one side of the block and on to the siding by the grooves on the other side of the block when turned, and spring plates for pressing against the exposed side of the turnable block and suitably secured in position as and for the purpose specified.

3. In a railway switch, the combination with the main line and siding, the inner rail of each terminating abruptly and the outer rails extending continuously, of turnable blocks located one opposite the abruptly terminated siding rail adjacent to the main line rail and one opposite the abruptly terminated main line rail and each provided with grooves on two sides, means for turning the blocks simultaneously whereby the train may be directed along the main line from the groove on the one side of the block and on to the siding by the grooves on the other side of the block when turned, and arms connected to turnable blocks and the operating rod to which said arms are pivotally connected as and for the purpose specified.

4. In a railway switch, the combination with the main line rails and one siding rail extending thereto and the other extending beyond the main line rail on to the main line, and the blocks connecting the ends of the main line rail and the siding rail, of the bearing or stationary blocks located at a



point opposite the merging of the side rail into the main line rail, the turnable blocks journaled on bearings between the aforesaid blocks adjacent to each rail and provided with guiding grooves on two sides of the block for directing a train on to the siding or straight along on the main line as and for the purpose specified.

5. In a railway switch, the combination with the main line rails and siding having the inner rail of each terminating abruptly and the outer rails extending continuously, of blocks located between the abruptly terminating ends aforesaid and below the level of the same and suitably secured in position, grooved stationary blocks secured adjacent to the main line rail and the siding rail abutting the aforesaid blocks and each provided with grooves, the block next the main line rail being provided with a groove adjacent to the tread of the rail and a groove having the inner edge on a line with the edge of the abruptly terminating siding rail, and the opposite block having a groove alined with the edge of the main line rail, and a groove adjacent to the siding rail, the said top of the block being flush with the tread, stationary blocks secured one to the main line rail and the other to the siding rail at the point where it merges into the main line rail, and the blocks being opposite each other and

provided with portions located beneath the level of the tread of the rails, and portions flush with the tread of the rails and provided with grooves adjacent to the rails, and turnable blocks journaled on pins in the stationary blocks and each provided with two grooved sides, one of the two grooved sides of one block next the main line rail being provided with a groove continuous with the stationary blocks and having the corner cut away so as to leave a portion of the block substantially flush with the tread of the rail, and the corresponding face or side of the co-acting block being provided with a groove on a line or continuous with the groove in the stationary blocks and with an outer corner cut away and an inner groove lying next the siding rail and parallel therewith and the other faces of the blocks being arranged when turned with a groove forming a continuation of the groove on the stationary blocks and the corresponding face or side of the co-acting block being provided with a groove forming, when turned, a continuation of the grooves in the stationary block as and for the purpose specified.

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Witnesses:

B. BOYD,  
A. CRIGHTON.