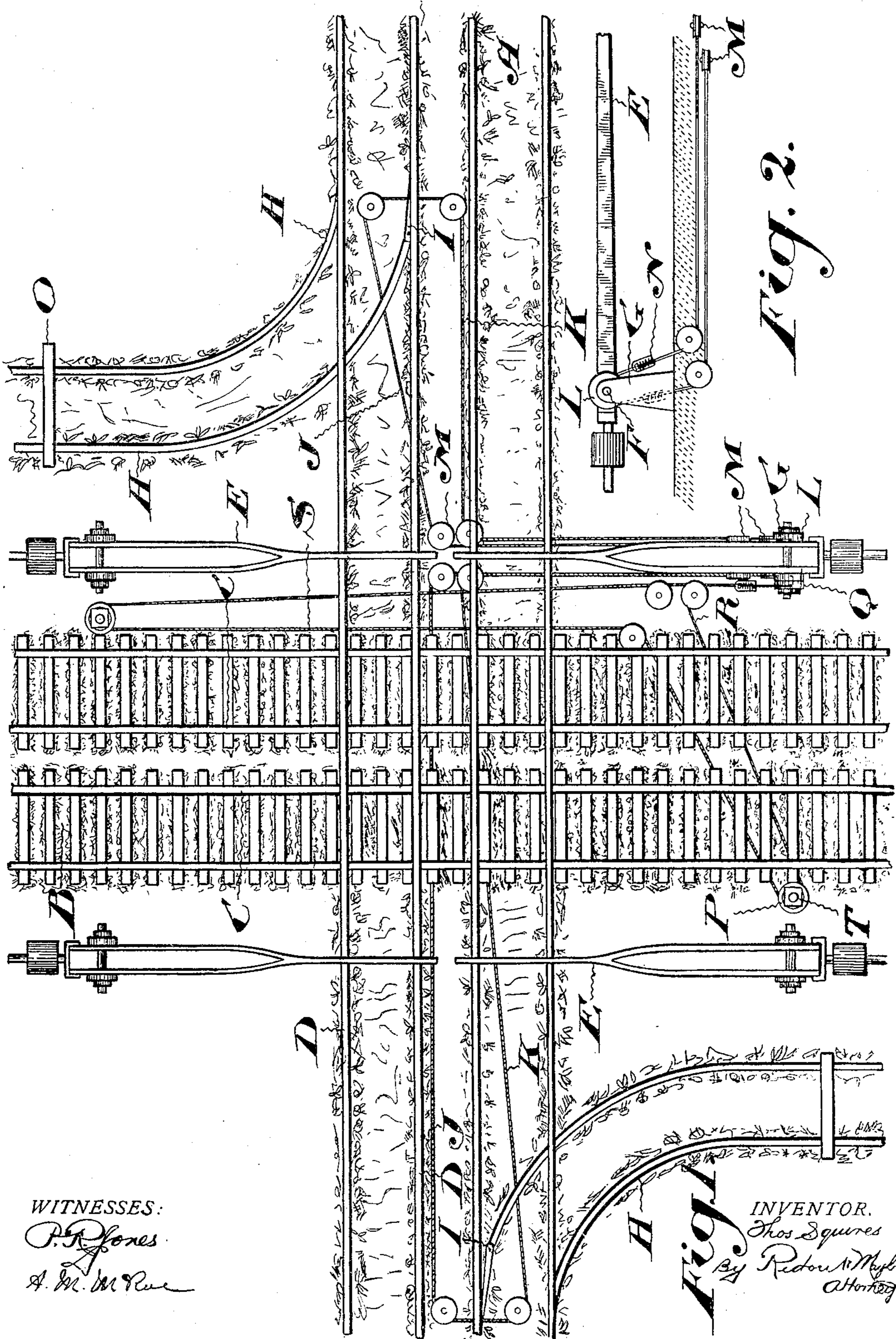


No. 809,028.

PATENTED JAN. 2, 1906.

T. SQUIRES.
AUTOMATIC SAFETY RAILWAY CROSSING.

APPLICATION FILED APR. 29, 1905.



WITNESSES:

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THOMAS SQUIRES, OF MARIPOSA TOWNSHIP, ONTARIO, CANADA.

AUTOMATIC SAFETY RAILWAY-CROSSING.

No. 809,028.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed April 29, 1905. Serial No. 258,048.

To all whom it may concern:

Be it known that I, THOMAS SQUIRES, of the township of Mariposa, in the county of Victoria, Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Safety Railway-Crossings, of which the following is a specification.

The object of my invention is to prevent accidents at points where railway-tracks cross one another, and it is particularly adapted to places where street-railway tracks on an ordinary roadway cross the rails of a steam road running on a regular right of way. Such crossings are usually protected by vertically-swinging gates; and my invention consists, essentially, in providing the street-railway track with a switch and in so connecting the switch-point with a gate that when the gates are closed on the approach of a train the switch-point will be moved to open the switch and when the gates are opened the switch-point will be moved to close the switch, substantially as hereinafter more specifically described and then definitely claimed.

Figure 1 is a plan view showing a crossing protected with my invention. Fig. 2 is a sectional elevation of a part of the same looking from the right toward the adjacent gate in Fig. 1.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A represents a roadway, and B a railway or other right of way on which are laid the railway-tracks C. On the roadway are laid the tracks D of another line of railway, in the present case supposed to be the tracks of a street-railway.

E represents gates protecting the crossing, preferably of the vertically-swinging type ordinarily employed. I show two gates protecting the crossing at each side, though of course a single gate might be employed, if convenient. Each gate is pivoted on the spindle F, carried by the standards G.

H represents switches connecting with the main line at each side of the crossing. These switches, it will be observed, are at each side located on the line along which cars approach the crossing and the switch is curved out laterally from the main line, so that any car or cars diverted onto the switch are gradually directed away from the crossing. Each switch is provided with suitable means by which it may be opened and closed. I show a switch-point I for each switch, by means of which the

opening and closing may be effected. To opposite sides of this point are connected the cables J and K, the other ends of these cables being connected to opposite sides of a drum L on the same spindle as and connected with one of the gates E. The cables between the drums and the switch-points are carried around suitable guide-pulleys M. It will be noted that the cables for each switch are connected with drums operated by the same gate. This is to insure the simultaneous movement of the switch-points and their accurate regulation, as the movement of only one gate has thus to be considered when connections and adjustments are made. The gates may of course be provided with any of the ordinary mechanisms for causing their simultaneous operation, if desired. In the cables intended to draw the switch-points to open the switches I preferably locate draft-springs N. These allow the gates to move after the switch-point has been closed, and thus avoid all danger of straining or breaking any of the parts by continued downward movement of the gate after the switch-point has been closed. It will be understood, of course, that it is a somewhat difficult matter to exactly regulate the connection so that the switch-point is moved the required distance to open the switch at the exact instant that the gate has descended to its last position. The use of draft-springs obviates the necessity for attempting this difficult adjustment.

From the construction described it follows that when the gate is opened the drums L are rotated and the cables K drawn upon to move the switch-points to close the switch to the main line. When the gates are closed, the cables J are drawn upon to draw the points I into position to open the switches to the main line. Thus any car approaching the crossing would be deflected into the switch and cannot possibly run on through the gates and into collision with an approaching train on the right of way. The switches may be provided with any suitable stops O, by which the car may be brought to a standstill or may, if desired, be on an upgrade, which will answer the same purpose. It will be understood, of course, that the cables and guide-pulleys might be under ground except where brought up for connection with the drums L. It will be understood, further, that the device is applicable either to a double or single track railway system and that the right of way at the crossing which is protected might be an ordinary roadway, a river, canal, drawbridge, or any

other right of way the crossing of which is protected with gates as described.

It is desirable, particularly for use at night, that signals shall be given, indicating both
5 along the road and along the right of way when the gates are down and when they are up. For this purpose I provide one or more signal-lamps T of the ordinary rotary type, provided with danger and safety signals at
10 opposite sides. Each signal-lamp will be provided with a pulley P, by which it may be rotated. The gate which operates the switches will be provided with an extra drum Q, rotating with the gate. Cables R will connect
15 this drum with the pulley P, passing on its way around suitable guide-pulleys. The arrangement will be such that when the gate is down the signal-lamp will show red along the roadway and white along the right of way,
20 and when the gate is up red along the right of way and white along the road. Of course the lamp may be differently colored on opposite sides to give the same signals in daylight. If a semaphore be desired for each
25 track on the right of way, it may be arranged as shown in the drawings, cables S being provided connecting with the cables R and running, if necessary, around suitable guide-pulleys.

30 What I claim as my invention is—

1. In a device of the class described the combination of a railway-track; a swinging gate transverse of the track; a switch connecting with the track and located at one side of the
35 gate; means for opening and closing the switch; and connecting means between the gate and the switch whereby when the gate is closed the switch is open, and vice versa, substantially as described.

40 2. In a device of the class described the combination of a railway-track; a swinging gate transverse of the track; a switch connecting with the track and located at one side of the gate; means for opening and closing the
45 switch; connecting means between the gate and the switch whereby when the gate is closed the switch is open, and vice versa; and a stop in the line of the switch, substantially as described.

50 3. In a device of the class described the combination of a railway-track; a swinging gate transverse of the track; a switch connecting with the track and curved out laterally; means for opening and closing the switch; and connecting
55 means between the gate and the switch whereby when the gate is closed the switch is open, and vice versa, substantially as described.

60 4. In a device of the class described the combination of a right of way; a road crossing said right of way; railway-tracks on said road; a swing-gate transverse of the roadway at each
65 side of the right of way; a switch at each side of the crossing, connecting with the main line, and curved out laterally; means for opening and closing the switches; and connecting means

between each switch and a gate, whereby when the gate is closed the switch is open, and vice versa, substantially as described.

5. In a device of the class described the combination of a railway-track; a swinging gate
70 transverse of the track; a switch connecting with the track and located at one side of the gate; means for opening and closing the switch; a drum on the same spindle as and rocking with the gate; two cables connected to opposite
75 sides of the drum and opposite sides of the switch opening and closing means; and guide-pulleys for said cables, whereby when the gate is closed the switch is open, and vice versa, substantially as described. 80

6. In a device of the class described the combination of a railway-track; a swinging gate transverse of the track; a switch connecting with the track and located at one side of the
85 gate; means for opening and closing the switch; a drum on the same spindle as and rocking with the gate; two cables connected to opposite sides of the drum and opposite sides of the switch opening and closing means; guide-pulleys for
90 said cables, whereby when the gate is closed the switch is open, and vice versa; and a draft-spring in the cable adapted to open the switch, substantially as described.

7. In a device of the class described the combination of a right of way; a road crossing
95 said right of way; railway-tracks on said road; a swing-gate transverse of the roadway at each side of the right of way; a switch at each side of the crossing, connecting with the main line and curved out laterally; means for opening
100 and closing the switches; two drums on the same spindle as and rocking with one of the gates; two cables connected to opposite sides of one of the drums and opposite sides of the opening and closing means of one of the
105 switches; similar cables similarly connected to the other drum and switch opening and closing means; and guide-pulleys for said cables, whereby when the gate is closed the switch is open, and vice versa, substantially as described. 110

8. In a device of the class described the combination of a right of way; a road crossing
115 said right of way; railway-tracks on said road; a swing-gate transverse of the roadway at each side of the right of way; a switch at each side of the crossing, connecting with the main line, and curved out laterally; means for opening and closing the switches; connecting means
120 between each switch and a gate, whereby when the gate is closed the switch is open, and vice versa; a signal-lamp adapted to show a danger-signal along the road and a safety-signal along the right of way, and vice versa; and means
125 operated by a gate to move said signal-lamp, substantially as described.

9. In a device of the class described the combination of a right of way; a road crossing
130 said right of way; railway-tracks on said road; a swing-gate transverse of the roadway at each

side of the right of way; a switch at each side
of the crossing, connecting with the main line,
and curved out laterally; means for opening
and closing the switches; connecting means
5 between each switch and a gate, whereby when
the gate is closed the switch is open, and vice
versa; a signal-lamp adapted to show a danger-
signal along the road and a safety-signal along
the right of way, and vice versa; a pulley on
10 the signal-lamp; a drum on the same spindle

as and rocking with the aforesaid gate; two
cables connecting the pulley and the drum;
and guide-pulleys for the said cables, substan-
tially as described.

Cannington, Ontario, April 17, 1905.

THOMAS SQUIRES.

In presence of—

A. J. REID,

GEO. S. MACKENZIE.