

J. E. P. DOYLE.
Railway Switch.

No. 54,513.

Patented May 8, 1866.

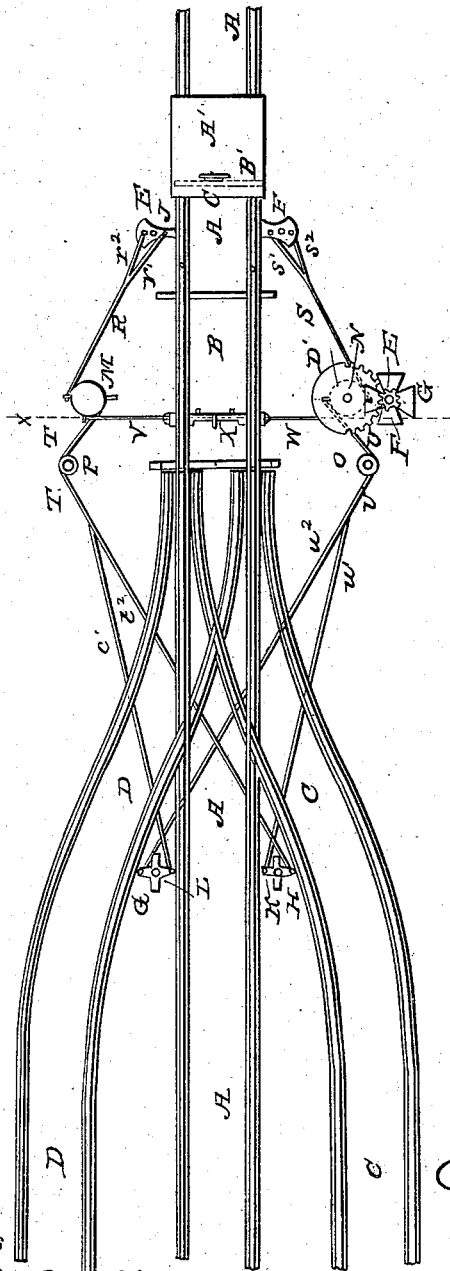
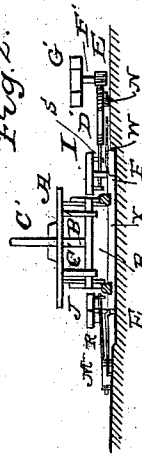


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

J. E. P. DOYLE, OF NEW YORK, N. Y.

IMPROVED RAILWAY-SWITCH.

Specification forming part of Letters Patent No. 54,513, dated May 8, 1866.

To all whom it may concern:

Be it known that I, J. E. P. DOYLE, of New York, N. Y., have invented a new and Improved Self-Adjusting Combined Safety Railway Switch and Signal; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a portion of a railroad-track with my improvement attached, the covers of the operating parts being removed to show their construction. Fig. 2 is a vertical cross-section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an apparatus by means of which railroad-switches and signals may be operated from the train; and it consists, first, in the combination of revolving arms, revolving cylinders, and chains with each other and with the switch; and, second, in the combination of revolving signals with the revolving cylinders; and, third, the combination of the lever and bar by which the switch is operated from the car with each other, with the car upon which they are placed, and with the revolving radial arms through which they act upon the switch, as hereinafter more fully described.

A is the main-line track, which, at the switch B, is represented as being joined by two side tracks, C and D.

E and F are posts firmly set in the ground, upon which revolve sets of radial arms I and J. The posts E and F should be set so close to the track that the revolving radial arms can be reached and operated from the train in the manner hereinafter described.

The posts G and H are exactly similar to the posts E and F, and in the same way are provided with radial arms K and L, except that when the posts G and H are placed in the angle between two tracks they must have arms projecting from each side, so that they may be operated both from the main and side track.

M and N are cylinders revolving in sockets made in stationary bed-plates; or they may revolve upon posts in the manner already de-

scribed with reference to the radial arms. O and P are guiding-pulleys, which may be placed at any point where it is necessary to change the direction of the chains.

To the radial arms I and J, on opposite sides of the posts E and F, are attached the ends of the branches r' r^2 and s' s^2 of the chains R and S. The other ends of the chains R and S are attached to the sides of the cylinders M and N, as shown in Fig. 1. To the opposite sides of the cylinders M and N are attached the ends of the chains T and U, which, after passing around the guiding-pulleys P and O, divide into two branches, t' and t^2 and u' u^2 , which are attached to the opposite radial arms of the posts G and H, as shown in Fig. 1. To the cylinders M and N are also attached the ends of third chains, V and W, the other ends of which are attached to the bar X, with which the movable rails of the switch B are connected.

A' represents a rail-car, which may be either the engine or tender. Beneath this car, at any point that may be most agreeable, is placed a bar, B', sliding in suitable supports, as shown in Fig. 2. To the center of this bar is pivoted the lower end of the lever C', which has its fulcrum near the floor of the car A', as shown, and by which the bar B' may be made to project at either side of the car, as may be desired.

To the upper side of the cylinder N is attached a gear-wheel, D', the teeth of which mesh into a pinion-wheel, E', attached to the revolving shaft F', the lower end of which is pivoted in a socket formed in some suitable stationary bed-plate. Upon the upper end of the shaft F' are placed the signal-arms G', which are painted in different colors, so as to indicate by the colors shown the exact position of the switch. The central parts of these arms may be made of colored glass, so as to throw the same colors by night as by day.

If the car A' is advancing in the direction of the switch and the engineer wishes to run upon the right-hand track D, he operates the lever C' so as to cause the bar B' to project on the right-hand side of the car. As the train advances the projecting end of the bar B' comes in contact with the revolving arm J and revolves it a sufficient distance to bring the switch into connection with the track D, upon which the train then runs. As the train

advances upon the track D the engineer reverses the lever C', projecting the bar B' from the left-hand side of the car, which then comes in contact with the radial arms L and moves the switch back into connection with the main track.

It should be observed that the radial arms should be placed at such a distance from the switch that when the train is moving from that direction the whole train may have passed the switch before the radial arms are reached and operated.

It may also be observed that the signals need not necessarily be placed close to the cylinder M or N. They must be so located that they can be seen for a sufficient distance along each track; but if not placed by the cylinders they should be so connected with said cylinders as to move when they move in operating the switch. The cylinders M and N should also be connected with the office, so that the switch may be operated from the office when desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the revolving radial arms I J K L, the revolving cylinders M N, and the chains R S T U V W, or their or either of their equivalents, with each other and with the switch B, substantially as described, and for the purpose set forth.

2. The combination of the revolving signals G' with the revolving cylinders M N, or either of them, substantially as described, and for the purpose set forth.

3. The combination of the lever C' and bar B' with each other, with the car A', and with the radial arms I J K L, substantially as described, and for the purpose set forth.

J. E. P. DOYLE.

Witnesses:

M. H. IRISH,
GEO. MOORE.