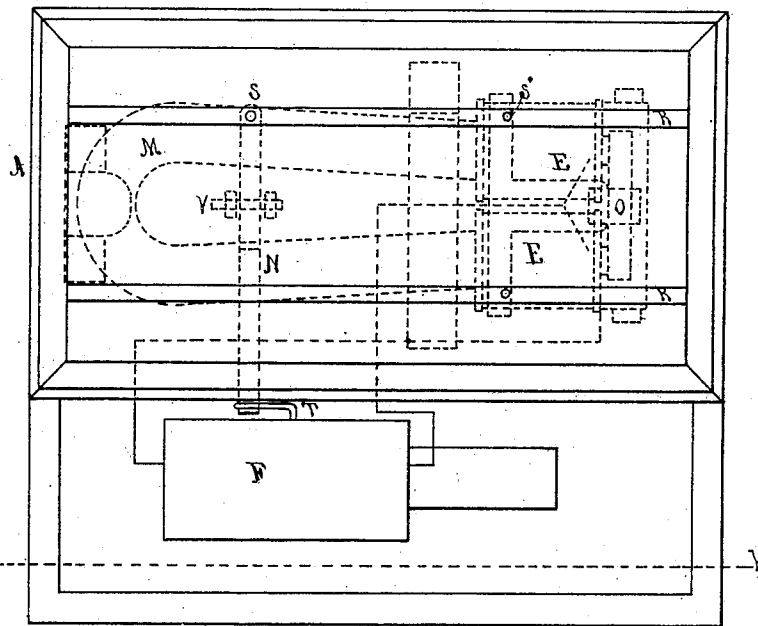
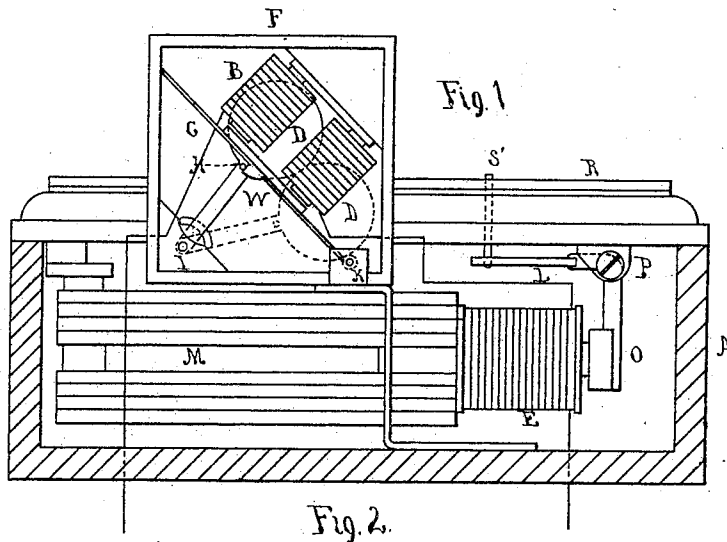


G. L. ANDERS.

MAGNETO-ELECTRIC RAILWAY-SIGNAL.

No. 173,878.

Patented Feb. 22, 1876.



Witnesses

A. L. Hayes.
Paul Anders

Inventor.

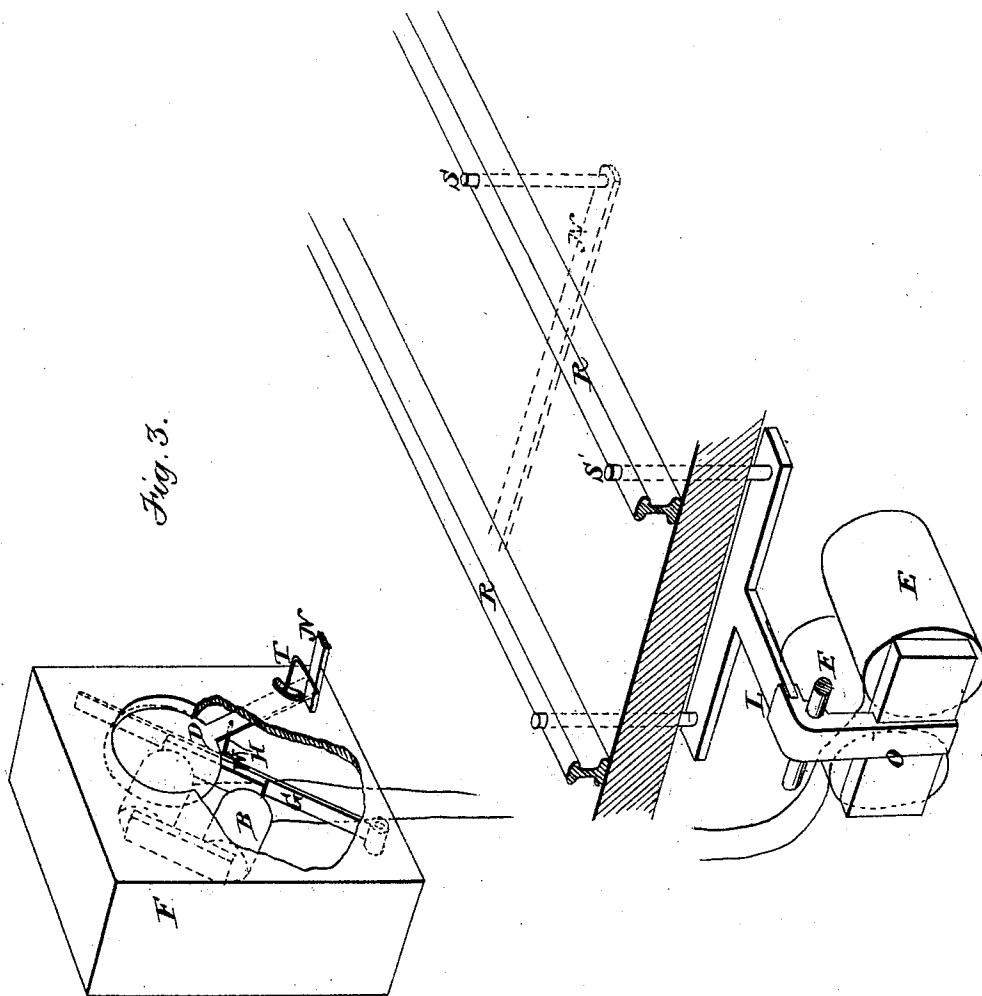
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Jane Anders

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UNITED STATES PATENT OFFICE

GEORGE L. ANDERS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
E. B. WELCH, OF SAME PLACE.

IMPROVEMENT IN MAGNETO-ELECTRIC RAILWAY-SIGNALS.

Specification forming part of Letters Patent No. **173,878**, dated February 22, 1876; application filed June 1, 1874.

To all whom it may concern:

Be it known that I, GEORGE L. ANDERS, of Boston, in the county of Suffolk, State of Massachusetts, have invented a new and useful Improvement in Electric Railroad-Signal Apparatus, of which the following is a full, clear, and exact description, reference being had to the drawings accompanying and forming part of this specification, in which—

Figure 1 is a vertical view of the apparatus, partly in section, through the line *a b* in Fig. 2; and Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of the signal apparatus and the magneto apparatus.

This invention relates to that class of railroad-signal apparatus used in what is known as the "block" system of signaling, in which, on the passage of the train over a certain point on the line, a semaphoric or other signal is automatically brought into the position which indicates danger, and remains in that position until the train reaches another point on the line, at any desired distance from the first point, when the signal is automatically released, and returns to its normal position, indicating that the line is clear on the section just passed over.

In the present form of apparatus the signal is thrown into the position indicating danger by mechanical means, actuated by the passing train, and is released by the action of a momentary current of electricity generated by magneto-electric apparatus, operated by the agency of the passing train when it reaches the distant point on the line; and the invention consists in the arrangement and combination of devices for accomplishing this end.

In the accompanying drawings, R R represent a line of railroad. At any desired point on the line, and at any desired distance from each other, are placed two pins, S S', so arranged in the track that they will be depressed by the wheels of the train as it passes over them. The pin S bears upon the end of a lever, N, pivoted under the track at V, as shown in dotted lines in Fig. 2, whose other end bears against a bent lever, T, to which is attached the arm of the semaphoric signal

D, as shown in Fig. 1, so that, when the pin S is depressed, the signal is thrown up into the "danger" position, as shown in full lines in Fig. 1. Across the arm of the signal D, but not attached thereto, is a lever, G, pivoted at K to the box F, which incloses the signal-arm, and upon this lever G is a stop or projection, W, having its face inclined; and, when the arm of the signal D is thrown up, a pin, H, on the arm, strikes this projection, and, sliding over its inclined face, is caught on the upper part of the same, and thus the arm is retained in position until the stop is withdrawn.

The withdrawal of this stop is effected by an electro-magnet, the armature of which is attached to the lever G, and when said armature is attracted the stop W is withdrawn, and the arm falls, by gravity, to its normal position, as shown in dotted lines in Fig. 1.

The electric current which excites the electro-magnet B is produced by magneto-electricity when the train passes the distant point S'. At that point, under the track, inclosed in a suitable case, A, is placed a permanent magnet, M, having its poles wound with helices of wire E, which are connected with the magnet B, and having an armature, O. To this armature is attached one end of a bent lever, L, pivoted at P to the case A, and upon the other end of the lever bears the pin S', so that when said pin is depressed by the wheels of the passing train the armature O will be withdrawn from the poles of the magnet M, and a current of electricity will be induced in the coils E E, which current will excite the electro-magnet B at the distant station, and cause the attraction of its armature, and the consequent release of the signal-arm, so that the signal will fall and indicate that the line is clear on the section just passed over by the train.

Instead of pins S S', any other suitable mechanical devices may be made use of for causing the passing train to effect the throwing up of the signal and the generation of the electric current which releases the same.

What I claim as my invention, and desire

to secure by Letters Patent of the United States, is—

1. The combination of the pin S, lever N, bent lever T, and signal-arm D, as and for the purpose set forth.

2. The combination of the signal-arm D, stop H, lever G, stop W, electro-magnet B, and magneto-electric apparatus M, situated

at any desired distance from the signal, and arranged to be operated by the passing train, as and for the purpose set forth.

GEORGE L. ANDERS.

Witnesses:

JANE ANDERS,
E. B. WELCH.