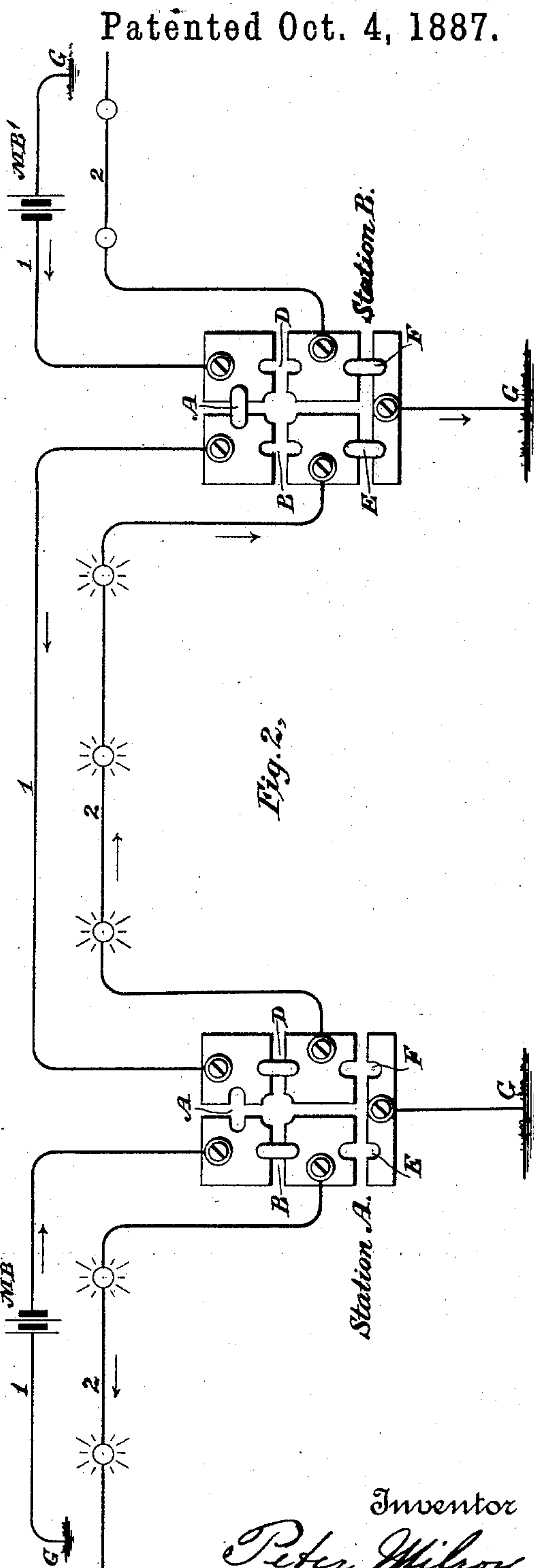
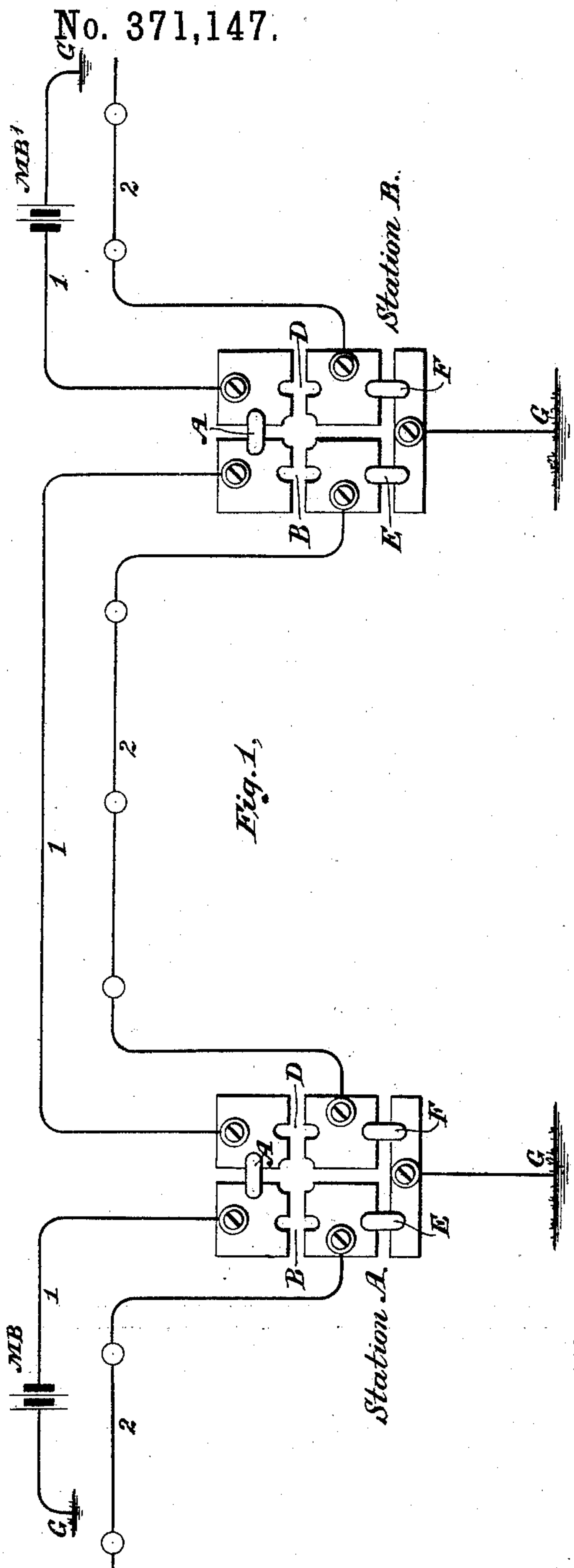


(No Model.)

P. MILROY.
RAILWAY SIGNAL.

No. 371,147.

Patented Oct. 4, 1887.



Witnesses

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UNITED STATES PATENT OFFICE.

PETER MILROY, OF JERAULD COUNTY, DAKOTA TERRITORY.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 371,147, dated October 4, 1887.

Application filed May 28, 1885. Serial No. 167,103. (No model.)

To all whom it may concern:

Be it known that I, PETER MILROY, a citizen of the United States, residing in the county of Jerauld and Territory of Dakota, have invented certain new and useful Improvements in Danger-Signals for Railways, &c., of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to electrical danger-signals wherein electric lights are arranged at short distances from each other between stations, and when illuminated serve as danger-signals.

The object of my invention is for the greater safety of life and property in railway travel and traffic. It is organized so that station agents and operators may thereby be enabled to notify the occupants of the trains running between stations of their immediate danger from such causes as impending collisions, washouts, broken bridges, &c., coming to their knowledge after said trains have left their stations.

The invention consists in details of construction and arrangement, to be hereinafter described.

In the drawings, Figure 1 is a view of my invention, showing a diagram of the circuits; and Fig. 2, a view of the same when in operation, showing the lamps illuminated and the way in which the circuits are completed at a station.

In the two figures of the drawings the same letters and figures refer to the same parts.

1 designates a main-line circuit extending along a railway and charged by electricity. This circuit is charged by two main batteries, M B and M B', with their like poles to line. The circuit 1 is grounded at each end of the line at G G, so as to provide a return-circuit by way of the earth.

2 is a main line also, extending between stations by side of the circuit 1, and contains therein electric lights arranged at eighty rods from one another. This distance may be varied according to the uneven or level ground through which the railway passes. The lights should be placed in such position that they

may readily be seen by occupants of trains, and should for this purpose be suspended high in the air. The circuits 1 2 may be carried overhead on poles or arranged in any manner found convenient. The lights may be provided with colored globes, if necessary, to make them more conspicuous. Incandescent or arc lamps may be used at pleasure, and the electricity for charging the line 1 be generated by any of the methods in use. The wires of the circuit should be strongly insulated.

In the drawings I have shown two stations, A and B, at each of which is provided a switch-board, designed for use for the above purpose.

Before describing the switch-board it will be understood that the line 2 is grounded at each end of the road, the same as line 1.

Fig. 1 represents the normal position and arrangement when not in use. The circuit of the line 1 is normally completed between two metallic plates by a switch-plug, A. The sections or branches of the line 2 are also connected with two similar metallic plates, which are grounded by a plate through the switch-plugs E F. The switch-board is also provided with means, B D, for coupling the two sets of similar plates together, as shown in the drawings. In this normal position of parts the circuit of the main line 1 is completed from station to station to the end of the line, and the batteries M B and M B' oppose each other, and consequently cause no loss of electrical energy when the same is not needed, as is well known by electricians, the one battery re-enforcing the other and causing no wasteful loss.

Fig. 2 represents the apparatus when in use, illustrating the condition of affairs when sending a signal in both directions from station A. In this case the switch-plug A is withdrawn, as well as the plugs E and F, and connection is made at B D by switch-plugs. The drawings show the plugs in the switch-boards connecting the different circuits. This completes the circuit of the battery M B by way of the switch-plug B to the line 2 to the left, and also the circuit of battery M B' through the switch-plug D to the right-hand side of line 2, lighting the lamps in both directions, and thus notifying trains approaching in either direction that there is danger ahead. It will be obvious that the lights upon either side alone may be illuminated by this means, or

that they may be illuminated on both sides of station A, as described. The direction of the current is represented by arrows in Fig. 2. The operator at station B may also illuminate the lights in either or both directions by pursuing the same course. When the cause for displaying the danger-signal is removed, the switch-plugs are placed in the position shown in Fig. 1. It will be observed that the switch-plugs at each station only have to be manipulated to display the danger-signal, and that the plugs at the other station remain in their normal position.

Having set forth my invention, what I now desire to claim and secure by Letters Patent of the United States is—

1. A danger-signaling system for railroads and the like, consisting of a constantly-closed grounded circuit charged by opposing batteries at each end of the line, as described, extending from station to station, a second circuit in sections, normally grounded, extending between stations, with one or more elec-

tric lamps therein located at different points of the route, and a switch-board with ground-connections at the stations for completing the circuit of the oppositely-charged line through any desired lamp or series of lamps, for the purpose set forth. 25

2. An electrical danger-signaling system for railroads and the like, consisting of a charged circuit, 1, grounded at each end of the line, a grounded switch-board, as A B D E F, made and constructed as shown and described, and a line, 2, extending between stations, normally grounded at the switch-boards A B D E F, containing electric lights therein at suitable distances apart, substantially as and for the purpose described. 30 35

In testimony whereof I have hereunto signed my name. 40

PETER MILROY. [L. S.]

Witnesses:

EDWARD F. MAKEMSON,
FRANK. W. WHITNEY.