A. C. MATHER.

RAILWAY SIGNAL.

APPLICATION FILED JULY 3, 1907.

935,215. **Patented Sept. 28, 1909.**

FIG. 1.

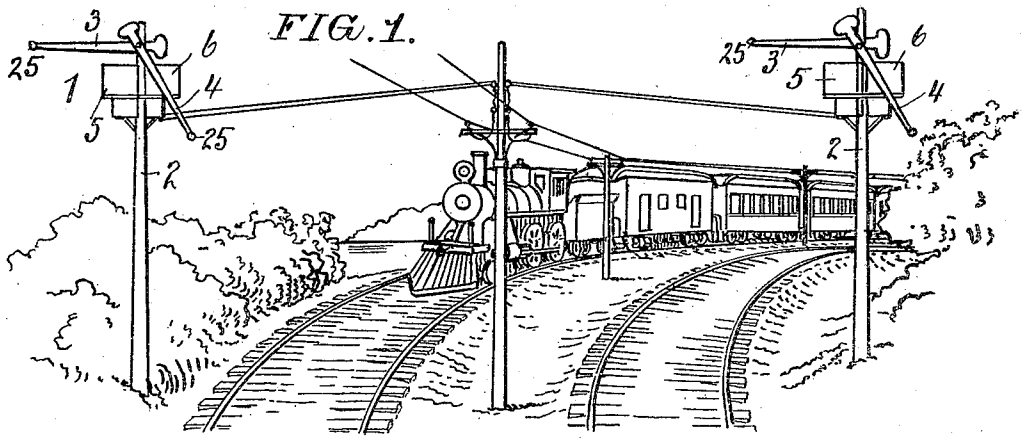
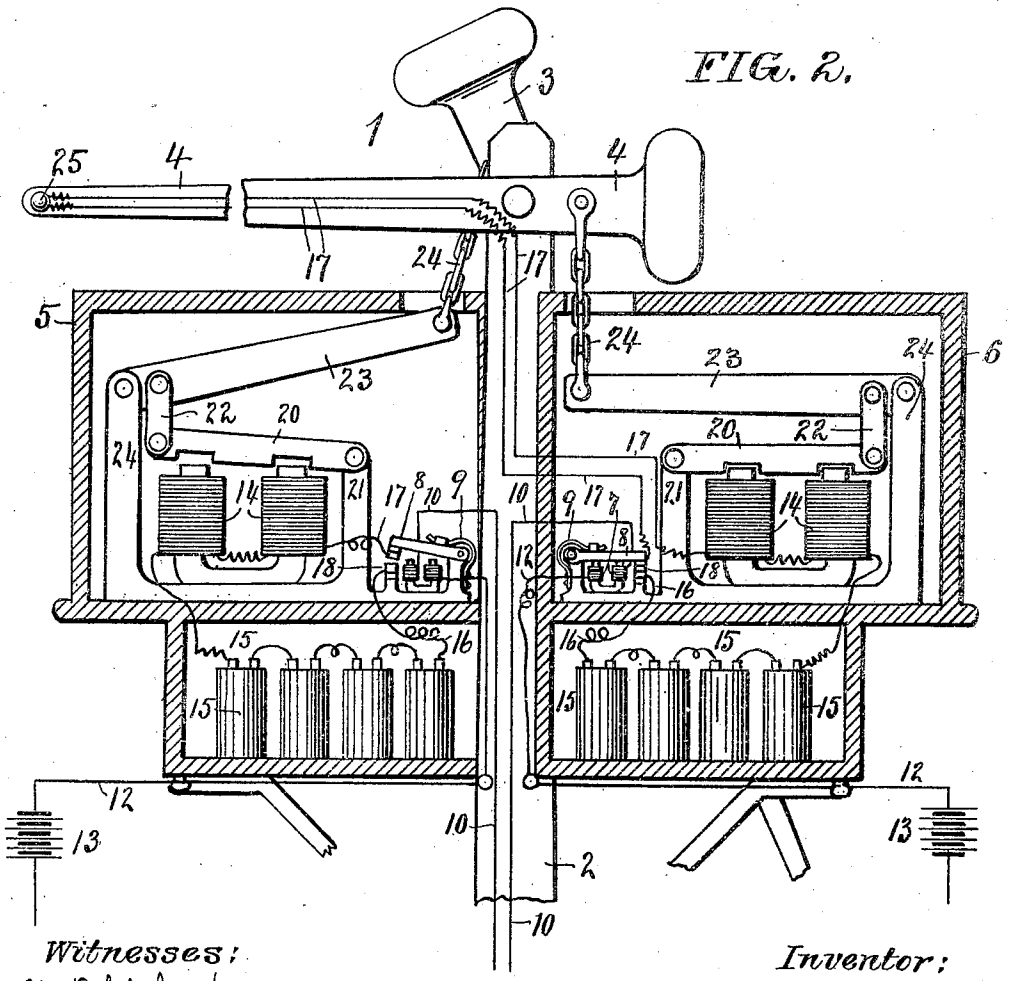


FIG. 2.



Witnesses:

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RAILWAY-SIGNAL.

935,215. Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed July 3, 1907. Serial No. 382,079.

To all whom it may concern:

Be it known that I, ALONZO C. MATHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

My invention relates to improvements in railway signals and particularly to electrically operated signals.

The object of my invention is to construct a signal having a relay magnet operated by a circuit which is completed by the train traveling on the railway tracks and making connection between said tracks which form part of the circuit or by an operator in the signal tower.

A further object of my invention is to provide a second and stronger circuit which is completed by said relay magnet and adapted to operate the signal arm.

A still further object of my invention is to connect a lever with the armature of a master magnet, connected in said second circuit, so as to increase the amount of movement of the signal arm; and a still further object of my invention is to provide a lamp upon said signal arm which is lighted by said second circuit.

Referring to the drawings: Figure 1 is a perspective view of the signals shown in connection with a railway; and, Fig. 2 is a vertical section of the signal drawn on a larger scale.

In the drawings 1 represents the signals mounted upon a pole 2. The signal arms 3 and 4 are operated independently of each other by mechanism contained in the casings 5 and 6. As the parts contained in each casing are duplicated in the other casing only one set of parts will be referred to in the following description.

In the casing 6 is provided a relay magnet 7 having a pivoted armature 8 normally held away from said magnet by a spring 9. The said relay magnet 7 is connected by wires 10 and 12 with a source of current 13 and forming a circuit which is completed by the train on the railway track, overhead trolley wires or by wires running to a signal operating tower.

A second circuit is formed to operate the signal arm 4 consisting of a master magnet 14 connected in a circuit with the batteries 15 forming a stronger source of current than that operating the relay magnet 7. The wires 16 and 17 forming part of the circuit for the master magnet 14 are connected to the relay magnet; the wire 17 being connected to the free end of the armature 8 and the wire 16 being connected to a post 18 with which the said armature 8 makes contact and completes the second circuit and operates the master magnet 14.

The armature 20 of the master magnet 14 is pivoted in a bearing 21, and at its free end is connected a link 22, which is attached to a lever 23 pivoted in a bearing 24. The link 22 is connected with said lever 23 at a point close to the fulcrum of the said lever and to the outer end of said armature 20, so as to increase the movement of the free end of said lever 23. The signal arm 4 is pivotally mounted upon the post 2 and is connected by a chain 24 or any other suitable connecting means with the free end of the lever 23.

The signal arm 4 is provided with a lamp 25 which is connected by the wires 17 forming part of the said second circuit operating the master magnet 14. In the casing 5, Fig. 2, the parts are shown in the normal position or when not acted upon by the magnets and in the casing 6 they are shown in the position which they assume when acted upon by the magnets.

The operation of my invention is as follows: When the circuit formed by the wires 10 and 12 is completed, the relay magnet 7 will draw down the armature 8 and complete the second circuit having the master magnet 14 connected therein and operated by the batteries 15. The master magnet will, when energized, draw down the armature 20, which will act on the lever 23 and operate the signal arm 4, and draw the same into a horizontal position. When the signal arm is in this position the lamp 25 upon the signal arm will be lighted, as it is connected in the second circuit with the master magnet operating the signal arm.

Having thus described my invention I claim and desire to secure by Letters Patent:—

1. In a signal, the combination of a magnet, an armature, a bearing in which one end of said armature is pivoted, a lever, a bearing in which one end of said lever is pivoted, a link connected with the free end of said armature and with the said lever at a point near the fulcrum of said lever, a signal arm

and means for connecting the free end of said lever with the said signal arm.

2. In a signal, the combination of a casing, a support for said casing, a signal arm pivoted to said support, a magnet located in said casing, an armature, a bearing in which one end of said armature is pivoted, a lever, a bearing in which one end of said lever is pivoted, a link connected with the free end of said armature and with the said lever at a point near the fulcrum of said lever and means for connecting the free end of said lever with said signal arm.

3. In a signal, the combination of a signal arm, a relay magnet, an electric circuit in which said relay magnet is connected, a source of current in said circuit, means for completing said circuit, a second circuit, a source of current in said second circuit, a master magnet connected in said second circuit, an armature on said relay magnet adapted to complete said second circuit, an armature on said master magnet, a bearing in which said latter armature is pivoted, a lever, a bearing in which said lever is pivoted, a link connected with the free end of said last mentioned armature and with the said lever at a point near the fulcrum of said lever and means for connecting the free end of said lever with the said signal arm.

4. In a signal, the combination of a signal arm, a relay magnet, an electric circuit in which said relay magnet is connected, a source of current in said circuit, means for completing said circuit, a second circuit, a source of current in said second circuit, a master magnet connected in said second circuit, an armature on said relay magnet adapted to complete said second circuit, an armature on said master magnet, a bearing in which said latter armature is pivoted, a lever, a bearing in which said lever is pivoted, a link connected with the free end of said last mentioned armature and with the said lever at a point near the fulcrum of said lever, means for connecting the free end of said lever with the said signal arm and a lamp on said signal arm connected in the circuit operating the master magnet controlling the said signal arm.

In testimony whereof I affix my signature in presence of two witnesses.

ALONZO C. MATHER.

Witnesses:

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M. R. CLEELAND.