No. 763,766. PATENTED JUNE 28, 1904.

H. A. JOHNSON.

SIGNALING MEANS FOR RAILROADS.

APPLICATION FILED NOV. 9, 1903.

NO MODEL.

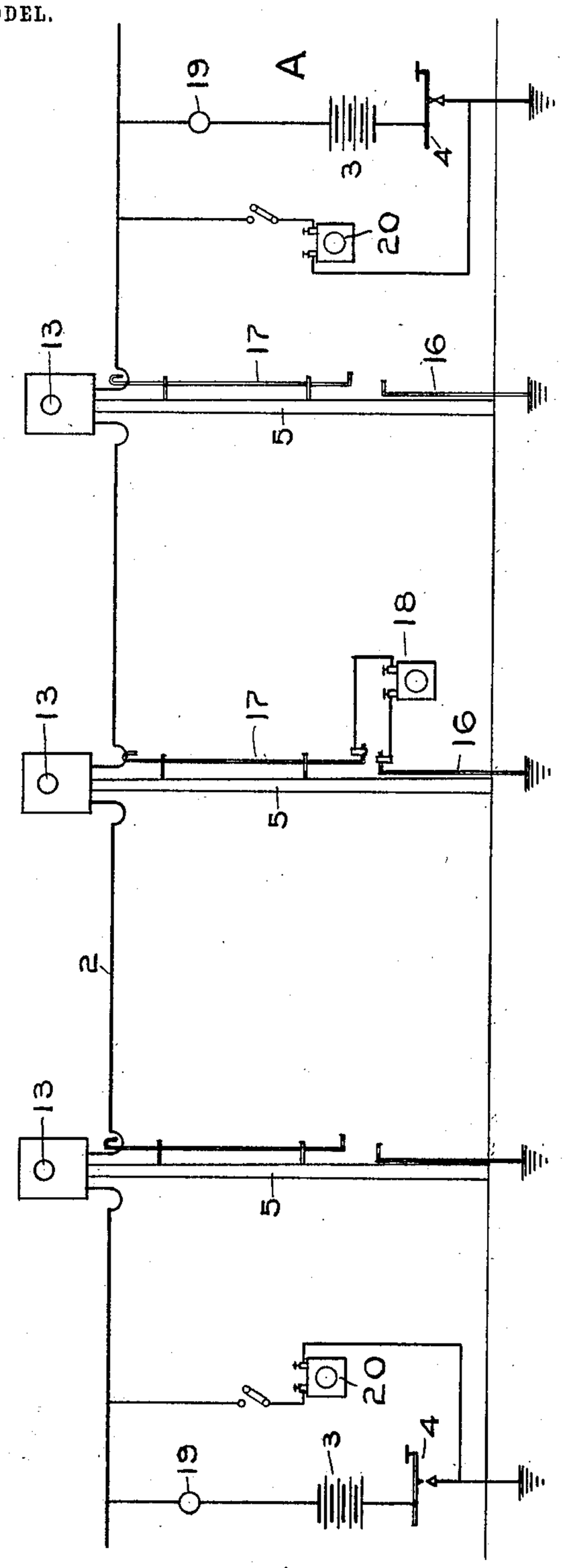

Fig. 1.

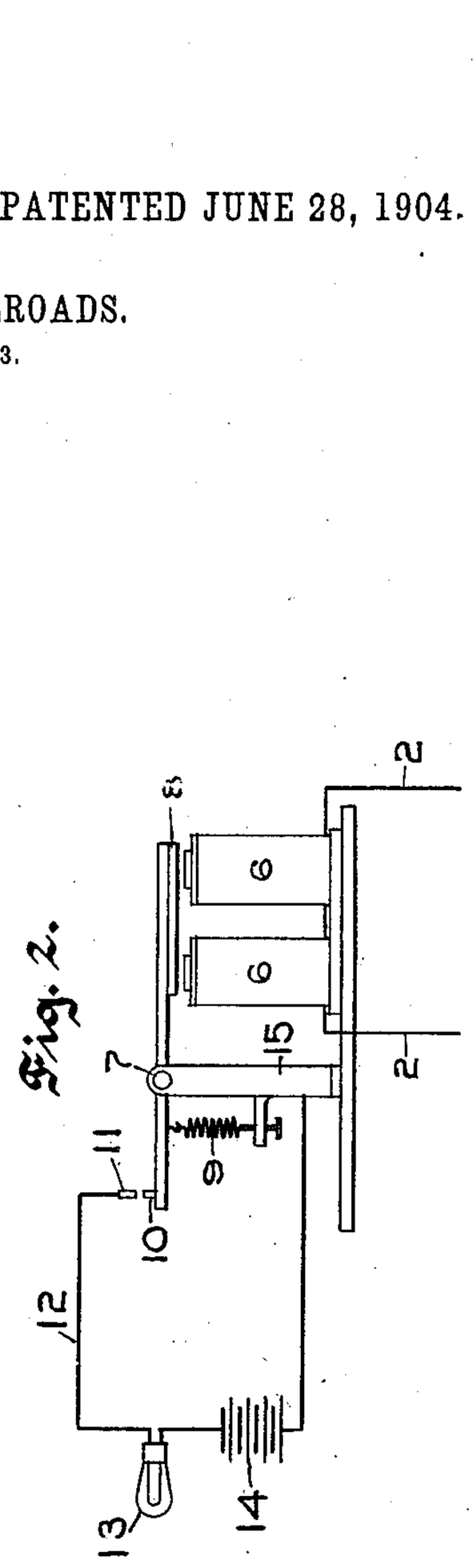

Fig. 2.

Witnesses,
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No. 763,766. Patented June 28, 1904.

UNITED STATES PATENT OFFICE.

HORATIO A. JOHNSON, OF ST. PAUL, MINNESOTA.

SIGNALING MEANS FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 763,766, dated June 28, 1904.

Application filed November 9, 1903. Serial No. 180,309. (No model.)

To all whom it may concern:

Be it known that I, HORATIO A. JOHNSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Signaling Means for Railroads, of which the following is a specification.

My invention relates to improvements in signaling means for railroads, its object being to provide means for signaling to and communicating with trains between stations in order to stop the trains and to give instructions.

To this end my invention consists in the features of construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 indicates two stations connected by my improved means, and Fig. 2 is a detail of an auxiliary circuit forming part of my invention.

In the drawings, A and B represent two stations connected by a circuit-line 2. The circuit-line 2 is grounded at the stations, as shown, and provided at each station with a source of energy 3 and a key 4. Intermediate of the stations the circuit-line passes over suitable poles 5. At each pole 5 the main circuit passes through an electromagnet 6, which constitutes part of the secondary light-circuit. (Indicated in Fig. 2.) Having fulcrum-support 7 in connection with each magnet 6 is an armature 8, normally held open by a suitable tension-spring 9. The end of the armature-lever opposite to the magnet carries a contact-point 10, oppositely disposed to a contact-point 11, the contact-point 11 being connected through a circuit-line 12, lamp 13, and source of energy 14 to the armature-supporting standard 15. Upon the contact-points 10 and 11 being brought together the lamp-circuit is thus closed. The main or master circuit 2 is adapted to be separately connected adjacent to each lamp-circuit with the stations by means of the grounded line 16 and a slidable line 17, supported alongside the adjacent post. The slidable line 17 normally stands out of contact with the main or master line, but is adapted to be drawn into contact with said line and to be connected with the grounded line 16 by detachable telephone transmitter and receiver 18, as illustrated in Fig. 1. By making the line 17 slidable, so as to be normally disconnected from the main or master line, accidental grounding through said line 17 is prevented.

Operation: Where it is desired to stop a train between A and B, the train-despatcher will order the keys of both said stations to be closed. This closes the main or master circuit, energizing the magnet 6 and closing the auxiliary lamp-circuit to light the lamps and signal the conductors to stop their trains to receive instructions. The conductor will then use his transmitter and receiver 18, in connection with the nearest circuit-line 16 and 17, to establish a telephone-circuit back to the nearest station and telephone said station for instructions. Normally the key at station A will be closed and at station B open, so that when a train becomes wrecked or stalled intermediate of the stations the conductor can go to the nearest pole and by connecting up his telephone apparatus ground the master-circuit back through station A. This will light the signal-lamp 19 at station A to signal the operator at said station to attach his hand-telephone 20 to the line and answer the conductor. At the same time all the flash-signal lamps between the conductor and station A will be closed by the closing of the master-circuit. The operator at station A can then notify the operator at station B to close his key to close the master-circuit, and thereby turn on the flash-signals between the stations A and B, which will continue to show until the key in one of the stations is opened.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with two terminals, a master-circuit connecting said terminals, a source of energy and a key arranged at each terminal, auxiliary circuits arranged in connection with said master-circuits, and means actuated by the closing of said master-circuit to close said auxiliary circuits.

2. In combination with two terminals, a source of energy and a key at each terminal, magnets arranged in said master-circuit, an

armature arranged in connection with each of said magnets, and a lamp-circuit containing a source of energy arranged in connection with said armature, as and for the purpose set forth.

3. In combination with two terminals, a master-circuit connecting said terminals, a source of energy and a key arranged at each terminal, auxiliary lamp-circuits arranged in connection with said master-circuit, normally open circuits arranged between said master-circuit and the ground, said normally open circuits being each arranged to be closed by the insertion of a telephone transmitter and receiver.

4. In combination with two terminals connected by a master-circuit, a source of energy and a key arranged at each terminal, magnets arranged in said master-circuit, an armature arranged in connection with each magnet, a lamp-circuit including a source of energy arranged in connection with said armature in position to be closed by the closing of said master-circuit, normally open circuit-lines arranged between said master-circuit and the ground, each of said normally open lines being arranged to be closed by the insertion of a telephone apparatus to connect the master-circuit at that point with the ground.

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

HORATIO A. JOHNSON.

Witnesses:
H. S. JOHNSON,
EMILY F. OTIS.