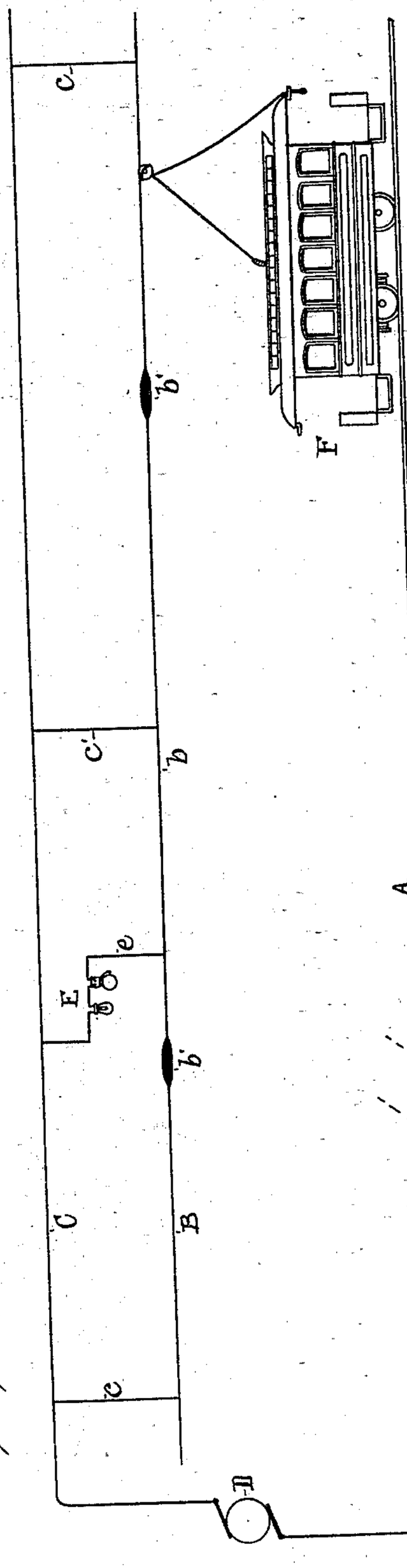
(No Model.)

W. H. JORDAN.

ELECTRIC RAILWAY.

No. 560,903.

Patented May 26, 1896.



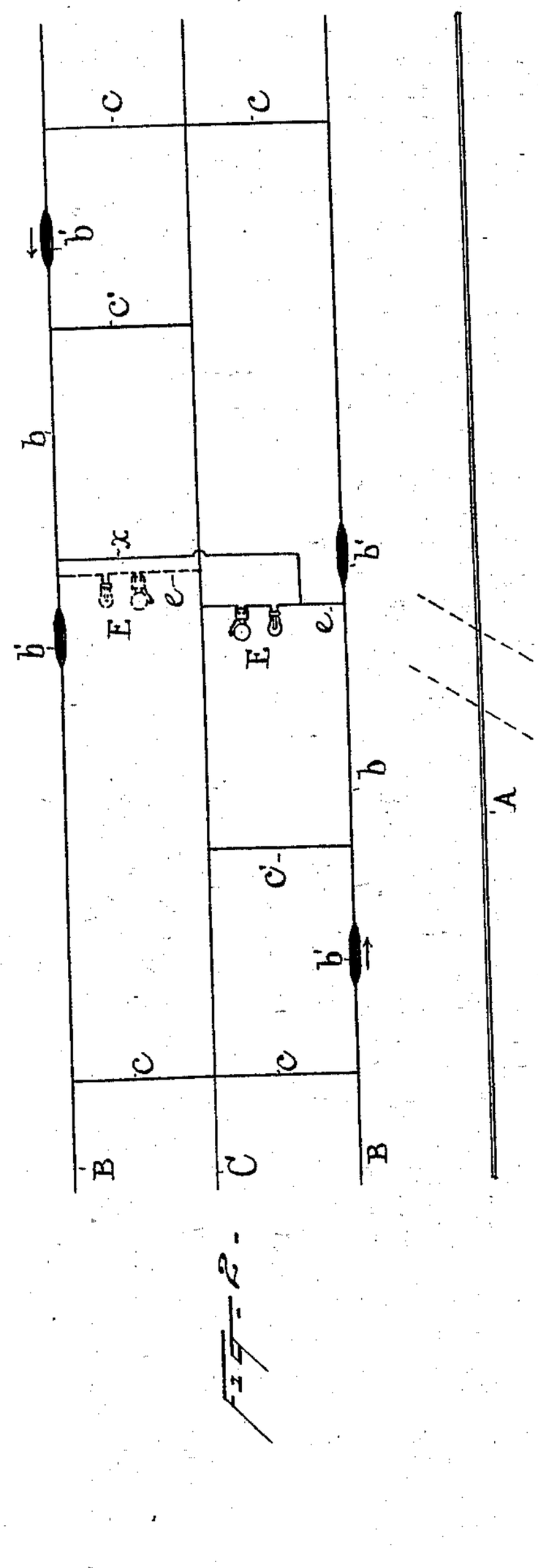


Fig. 2.

Fig. 1.

Witnesses
Norris A. Clark.
[illegible]

Inventor
William H. Jordan
By his Attorneys
Dyer & Driscall.

UNITED STATES PATENT OFFICE.

WILLIAM H. JORDAN, OF BROOKLYN, NEW YORK.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 560,903, dated May 26, 1896.

Application filed January 17, 1896. Serial No. 575,825. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. JORDAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Electric Railways, of which the following is a specification.

The object of my invention is to provide a simple system of signaling on electric railways and to do away with expensive and complicated mechanism for operating the signals.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 illustrates my method of signaling employed on a single-track road, and Fig. 2 is a similar view of a double-track road.

Referring to the drawings, A represents the track; B, the working conductor, which may be overhead or underground; C, the feed-wire, and *c* the connections between the feed-wire and the working conductor B.

D represents the generating-station, with which the track and the feed-wire are connected.

The working conductor B is divided into insulated sections, one such section being shown in the drawings at *b* and insulated by insulators *b'*. These insulated sections constitute the block or section at which it is desired to operate a signal. The signaling devices E, which may be either lamps or audible signals, or both, are connected in a branch wire *e* between the insulated section *b* of the working conductor and the feed-wire C. The insulated section *b* is also connected with the feed-wire by a connection *c'*. This latter connection is of higher resistance than the connection *e* in order to insure the operation of the signaling devices. The object of the additional connection *c'* with the feed-wire is to provide for the interruption of the circuit *e* through any damage to the signaling devices. If the connection *c'* were omitted, the current for the motor would pass entirely through the signaling devices, and should the circuit *e* be interrupted the motor on the car would receive no current, and hence would be unable to proceed until the circuit *e* were restored. The additional connection *c'* avoids this difficulty and enables the simplest kind of signaling devices to be employed, avoiding the use of expensive mechanism for guarding against this objection.

In Fig. 2 a single signaling device is employed for the two tracks, and in order to operate the same from both sides an additional connection *x* is employed. If, however, it is desired to have a separate signaling device for each track, the connection *x* may be omitted and a separate connection *e*, (shown in dotted lines,) containing signaling devices, may be substituted.

The operation is as follows: Referring to Fig. 1, when the car F enters the section *b* from the right it will receive current through the connections *e* and *c'*, and the signaling devices at the left-hand end of the section will be operated. As the car leaves the section *b* it will receive current from the working conductor B through the connection *c* from the feed-wire, as usual, and the operation of the signaling devices will cease. The same operation takes place in the double-track road illustrated in Fig. 2. In that illustration, if a car were entering either section *b*, or if both sections were entered simultaneously, the signaling devices would be operated similarly to those illustrated in Fig. 1. If desired, in practice, the connection *c'* between the insulated sections *b* and the working conductor B may be made of such a resistance that practically no current would flow through the same except when the connection *e* is interrupted. The conductor *c'* of high resistance possesses a further advantage in that should the signaling-circuit be interrupted and prevent the operation of the signals when a car enters the section the current for the motor would have to pass through the conductor *c'*, and since this conductor is of high resistance the electromotive force of the current received by the car-motor would be correspondingly decreased, and hence the speed of the car-motor would also be decreased, so that while the signaling devices would be inoperative the liability of accidents due to their inoperativeness would be avoided by the reduced speed of the car.

What I claim is—

1. In an electric railway, the combination with a working conductor having insulated sections, of a feed-wire extending along the

line and connected at intervals with the working conductor, a connection between the insulated sections and the feed-wire containing signaling devices and through which passes the current for the motor, and an additional connection between the feed-wire and insulated sections of the working conductor through which passes the current for the motor when the signaling devices fail to operate, which connection is such that when the signaling devices fail to operate, the motor will be caused to operate at a reduced speed.

2. In an electric railway, the combination with a working conductor having insulated sections, of a feed-wire extending along the line and connected at intervals with the working conductor, and two connections between the feed-wire and the insulated sections, one of said connections containing signaling devices and the other connection being of high resistance, whereby when a car enters an insulated section the current for the motor will pass through the signaling devices and operate the same, substantially as set forth.

This specification signed and witnessed this 30th day of December, 1895.

WM. H. JORDAN.

Witnesses:
EUGENE CONRAN,
W. PELZER.