

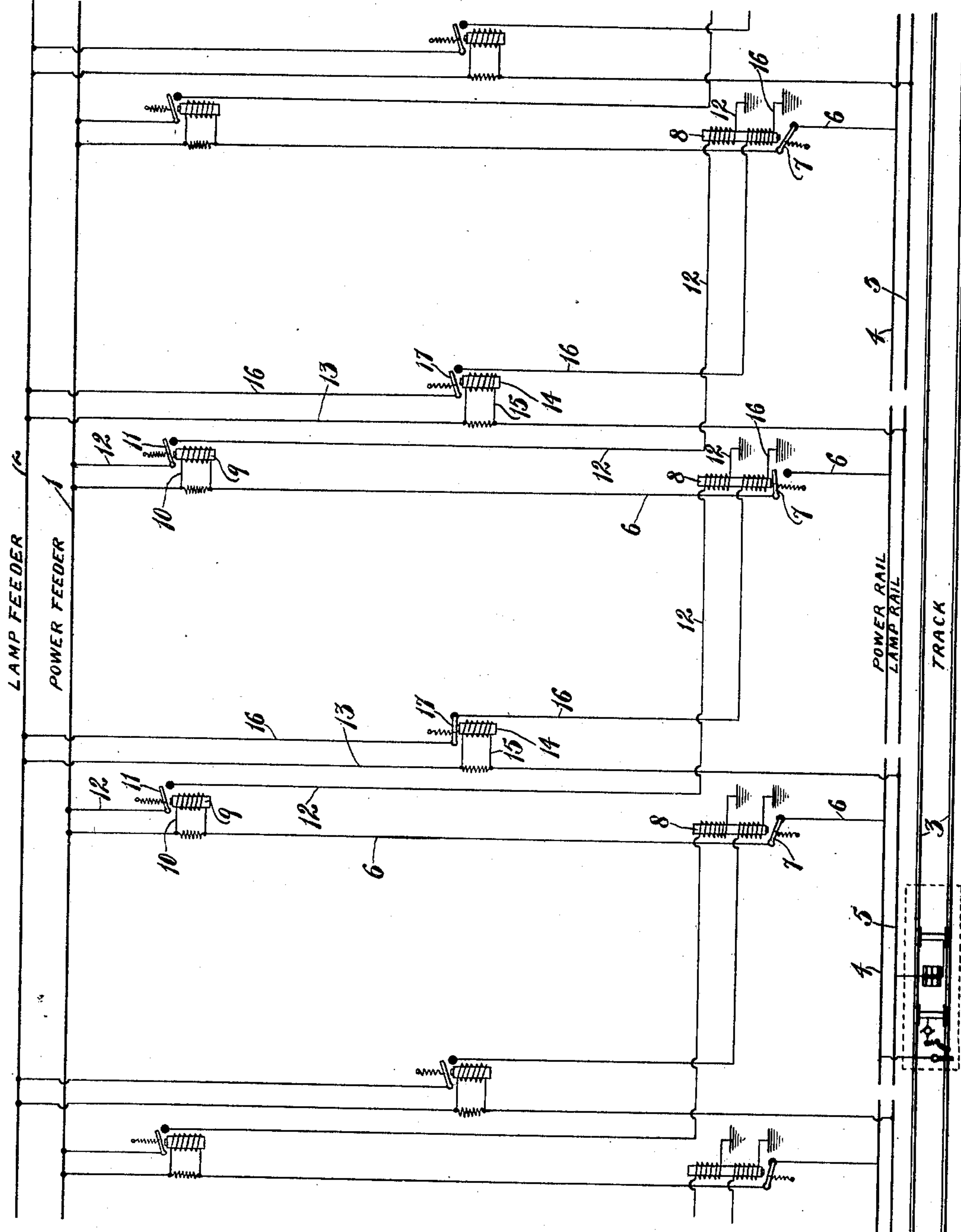
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H. F. PIEPER.
AUTOMATIC POWER CUT-OUT FOR ELECTRIC RAILWAYS.

APPLICATION FILED JAN. 5, 1904.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY F. PIEPER, OF NEW YORK, N. Y.

AUTOMATIC POWER CUT-OUT FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 756,523, dated April 5, 1904.

Application filed January 5, 1904. Serial No. 187,801. (No model.)

To all whom it may concern:

Be it known that I, HARRY F. PIEPER, a citizen of the United States, and a resident of the borough of Brooklyn, in the city and State of New York, have invented a new and useful System of Automatic Power Cut-Outs for Electric Railways, of which the following is a specification.

My invention consists in a system of automatic power cut-outs for electric railways whereby a motor-car on one block will automatically cut out the power on a preceding block when the power-circuit on the block upon which the motor-car is located is completed.

My invention further consists of a system in which the automatic power cut-out of one block is operated either by the completion of the lamp-circuit or the completion of the power-circuit in a succeeding block, so that the motor-car in the succeeding block will cut out the power in a preceding block whether the car be using the power-circuit or lamp-circuit.

The object of this invention is to absolutely prevent rear-end collisions on electric railways by taking away the power from a motor-car which is following too closely upon a preceding motor-car.

A practical embodiment of my invention is represented in the accompanying drawing, which represents in diagram a plurality of blocks located along a railway-track.

The electric-power feeder is denoted by 1, and the electric-lamp feeder is denoted by 2. The track is denoted by 3, and a power-rail 4 and lamp-rail 5 are located along the track in sections of predetermined length. A wire 6 leads from the power-feeder 1 to the power-rail 4 through the armature 7 of a power-cut-out electromagnet 8. The power-circuit is completed through a motor-car running along the track 3 in the usual manner. The energization of the power-cut-out electromagnet 8 will break the power-circuit at the armature 7.

An electromagnet 9 is located in the power-wire 6, in the present instance by a shunt-wire 10, so that the full power-current need not pass through the electromagnet. The ar-

mature of the electromagnet 9 is denoted by 11. A wire 12 leads through the armature 11 of the electromagnet 9 of one block around the power-cut-out electromagnet 8 of a preceding block and from thence to ground. The circuit is completed through the wire 12 when the electromagnet 9 is energized. This completion of the circuit through the wire 12 by the energization of the electromagnet 9 of one block will energize the electromagnet 8 of a preceding block, thus cutting out the power in the said preceding block.

A wire 13 leads from the lamp-feeder 2 to the lamp-rail 5 in each block, which circuit is completed through the motor-car in the usual manner. An electromagnet 14 is located in the lamp-wire 13, in the present instance by a shunt-wire 15, so that the full lamp-current need not pass through the electromagnet 14. A wire 16 leads from the lamp-feeder 2 through the armature 17 of the electromagnet 14 of one block around the power-cut-out electromagnet 8 of a preceding block and from thence to ground. When the electromagnet 14 of one block is energized by the completion of the lamp-circuit in that block, it will complete the circuit through the wire 16 by attracting the armature 17, thus causing the current passing through the wire 16 to energize the electromagnet 8 of a preceding block, and thereby cut out the power in the said preceding block. It will thus be seen that when a motor-car is either running or using the power or lamp currents the power will be automatically cut out of a preceding block, thus absolutely preventing the approach of a succeeding motor-car within a predetermined distance. Even if the motor-car should be standing still upon a certain block and using only the lamp-current the power will be cut out of a preceding block.

In the accompanying drawing I have shown in diagram a motor-car indicating the means for completing the power-circuit and also the means for completing the lamp-circuit. The car is represented as having its power shut off, but using its lamps, so that the circuit is complete from ground through lamps, lamp-rail 5, wire 13, lamp-feeder 2, wire 16, around electromagnet 8 of preceding block to ground.

This circuit is completed by the energization of the electromagnet 14 in its block on which the motor-car is located. The energization of the electromagnet 8 of the preceding block
5 breaks the power-circuit in that block at the armature 7, thus preventing a motor-car approaching from the rear from getting power on the said preceding block.

This system is extremely simple and effective and requires the use of a very few operating parts, a common power-cut-out electromagnet being utilized for both the power and lamp circuits.

What I claim is—

15 1. A track, a series of electric-power rails and a series of electric-lamp rails, dividing the track into blocks, and devices controlled by the completion of the lamp-circuit in one block for automatically cutting out the power in a
20 preceding block.

2. A track, a series of electric-power rails, and a series of electric-lamp rails, dividing the track into blocks, and devices controlled by the completion of the power-circuit or lamp-circuit in one block for automatically cutting
25 out the electric power in a preceding block.

3. A track, a series of electric-lamp rails,

and a series of electric-power rails, dividing the track into blocks, a power-cut-out electromagnet in each block, an electromagnet in each block energized by the completion of the lamp-circuit in that block for energizing the power-cut-out magnet of a preceding block to cut out the power in said preceding block.

4. A track, a series of electric-lamp rails, and a series of electric-power rails, dividing the track into blocks, a power-cut-out electromagnet in each block, an electromagnet energized by the completion of the power-circuit, an electromagnet energized by the completion of the lamp-circuit for energizing the power-cut-out electromagnet of a preceding block to cut out the power in said preceding block when the lamp or power circuit is completed in a succeeding block.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of January, 1904.

HARRY F. PIEPER.

Witnesses:

FREDK. HAYNES,
HENRY THIEME.