

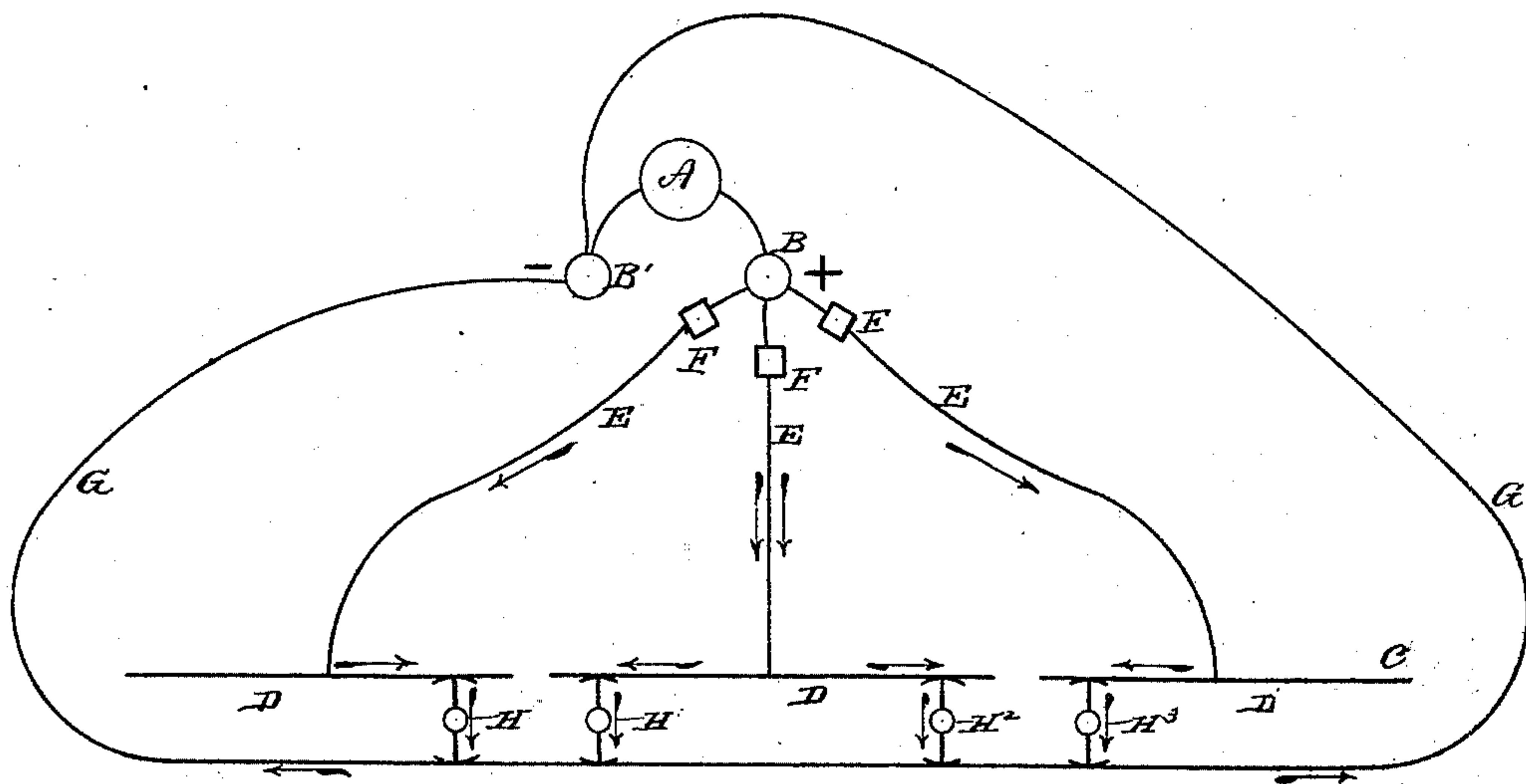
(No Model.)

S. H. SHORT.

SYSTEM OF DISTRIBUTION FOR ELECTRIC RAILWAYS.

No. 461,851.

Patented Oct. 27, 1891.



Witnesses  
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# UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO, ASSIGNOR TO THE SHORT ELECTRIC RAILWAY COMPANY, OF SAME PLACE.

## SYSTEM OF DISTRIBUTION FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 461,851, dated October 27, 1891.

Application filed January 4, 1890. Serial No. 335,900. (No model.)

*To all whom it may concern:*

Be it known that I, SIDNEY H. SHORT, a citizen of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in a System of Distribution for Electric Railroads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved system of electrical distribution for electric railways.

The object of the invention is to provide an electric railway with a conductor for transmitting current to the several motors to be operated thereon, said conductor to be composed of independent sections, each section having electrically connected therewith an independent—that is to say, individual—conductor connecting directly with the generator, provided with an automatic cut-out operated by an abnormally-heavy current, and a return-conductor common to all such sections, whereby the short-circuiting of any one of such sections will result in automatically open-circuiting such section and preserve intact the remaining sections of the road.

The accompanying drawing is a diagrammatic representation of one embodiment of the invention.

A represents a dynamo-electric machine, and B B' its positive and negative binding-posts.

C is one trolley-line or conductor of an electric railway and is subdivided into any desired number of insulated sections D. Each section D is connected to the positive terminal or binding-post B of the generator by a conductor E, in which is included a safety-fuse F. The return trolley-line or conductor G has its terminals connected to the negative binding-post B' of the generator.

H H' H<sup>2</sup> H<sup>3</sup> represent motors on the different cars in operation. Current from the dynamo divides at the binding-post B and flows through the several independent feeding-conductors E to the several independent trolley-line sections D, from whence the current flows through the trolleys, motors H H' H<sup>2</sup> H<sup>3</sup>, &c., and back through trolleys to the

return-conductor G, which is common to all the independent sections D. If from any cause an abnormal amount of current should flow through one of the feed-conductors E, due to the short-circuiting of one of the trolley-line sections D with the return-wire G or with some other wire, the fuse F in that particular conductor will be blown out, and thus open-circuit it and render inoperative the particular trolley-line section with which it is connected and leave intact and in operative condition all of the remaining sections of the line. Thus it will be observed that a short-circuiting of any portion of the trolley-line cannot operate to rob that portion of the line beyond the short-circuit of current and render inoperative all the motors dependent on such current-supply for their operation, but will simply result in automatically cutting out of action the particular section of trolley line in which the short circuit is made and preserve intact the flow of current in all other portions of the line.

Instead of using the conductors E as supply-conductors, the operation may be reversed and the current supplied through conductor G and returned through the sectional trolley-line and the several conductors E connected therewith. Again, instead of using a safety-fuse F in each one of the conductors E, I may employ an electro-magnet cut-out and construct it to serve the same purpose. By my arrangement of radiating conductors E the induction of the currents flowing therein or currents flowing in neighboring wires will be very materially reduced.

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

1. In a system of electrical distribution for electric railways, the combination, with an electric generator and a continuous trolley-line or conductor, of a trolley-line consisting of a series of insulated sections, an individual conductor connecting each of said sections with the generator, and an automatic cut-out for opening the circuit on the passage of an abnormally-heavy current included in each one of said connecting-conductors, substantially as set forth.

2. The combination, with an electric gen-



erator, of a conductor comprising a series of insulated sections, each section being connected to one terminal of said generator, and a continuous conductor connected at both  
5 ends to the other terminal of the generator, substantially as set forth.

3. The combination, with an electric generator, of a trolley-line comprising a conductor insulated in sections, individual conductors extending from said sections, respectively, to the said generator, and an automatic cut-out adapted to open the circuit on the passage of an abnormally-heavy current, arranged in each of said individual conductors,  
10 substantially as described.

4. The combination, with an electric generator, of a conductor comprising a series of insulated sections, a series of individual feed-wires connecting the sections of said conductor with one terminal of the generator, a  
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fuse in each feed-wire, and a continuous conductor connected with the other terminal of the generator, substantially as set forth.

5. The combination, with an electric generator, of a conductor comprising a series of  
25 insulated sections, a series of feed-wires connected with and radiating from one terminal of the generator, each of said wires including a fuse and each connected with a section of said conductor, and a continuous conductor  
30 having both ends connected to the other terminal of the generator, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.  
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SIDNEY H. SHORT.

Witnesses:

A. B. CALHOUN,  
JOHN C. DOLPH.