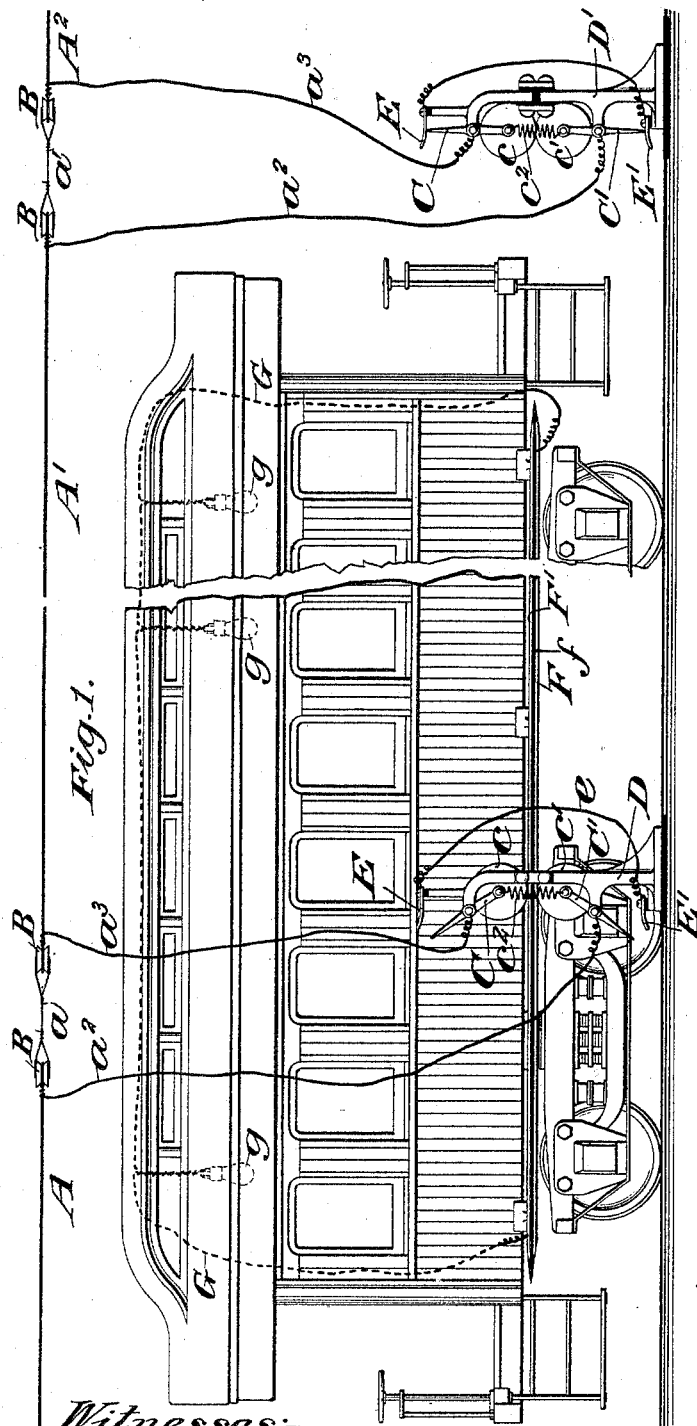


(No Model.)

G. L. THOMAS.
SERIES SYSTEM FOR RAILWAYS.

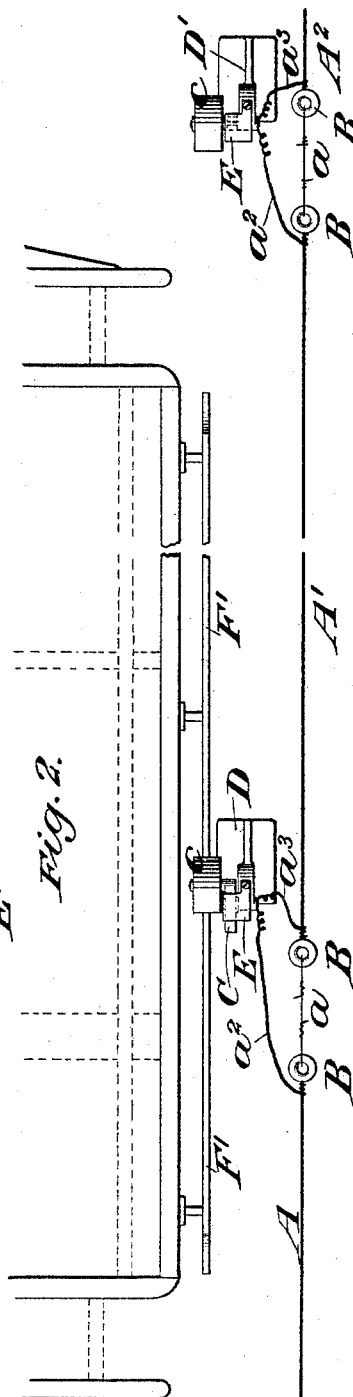
No. 491,691.

Patented Feb. 14, 1893.



Witnesses:-

R. N. Haynork
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Inventor:-
George L. Thomas
by attorneys
Brown & Howard

UNITED STATES PATENT OFFICE.

GEORGE L. THOMAS, OF BROOKLYN, NEW YORK.

SERIES SYSTEM FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 491,691, dated February 14, 1893.

Application filed June 16, 1892. Serial No. 436,901. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. THOMAS, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Means for Transmitting Electrical Currents Through Moving Vehicles, of which the following is a specification.

My invention relates to an improvement in means for transmitting electrical currents through moving vehicles either for purposes of locomotion or lighting or both and it contemplates a single line wire located along the path of the moving vehicle and adapted to be intercepted by the vehicle to make an insulated circuit within the moving vehicle a part of the single line circuit.

A practical embodiment of my invention is represented in the accompanying drawings in which,

Figure 1 represents in side elevation a railway car, a line wire and the means for intercepting the line wire so as to make a conductor carried by the car a part of the line conductor, and Fig. 2 is a partial top plan view of the same.

For purposes of illustrating my invention, I have shown the line wire in the present instance as located over head and at the side of the track and have shown the points for intercepting the circuit, along the side of the track and at a height substantially corresponding to the height of the bottom of the car above the track. This arrangement, however, is a matter of choice and may be varied as experience may require. The line wire is arranged in sections A, A', A² &c. along the track, which sections are conveniently held in alignment by ties a, a' &c., connecting insulating blocks B around which the sections A and A' pass. The adjacent sections A, A' have their electrical connection normally completed through drop branches a², a³ which connect with swinging arms C and C' pivotally secured to branches of a standard D and carrying in their adjacent ends loosely mounted contact rollers or brushes c, c', which normally rest in contact, as shown at the right of Fig. 1. The standards D, D' are intended to be located along the track at distances somewhat less than the length of a car or somewhat less than the length of the contact pieces carried by the moving train or vehicle

and are intended to be insulated from the ground and also have their portions carrying the swinging arms C and C' insulated from each other. When therefore the arms C and C' and their rollers or brushes c, c' are in normal position, there is an unbroken electric circuit through the several line wire circuits a, a' &c. connected through the drop branches a², a³; swinging arms C, C' and rollers c, c'.

To insure the completion of the circuit against any unintentional interruption by the slight separation of the rollers C, C', I provide a pair of spring contact pieces E, E' insulated from surrounding objects and electrically connected by a wire e. The ends of the swinging arms C and C' opposite the rollers c, c' are adapted to rest normally in engagement with the spring contact pieces E, E' so that the circuit will be complete through said contact pieces and their connection e, even though the rollers themselves fail to touch.

The moving vehicle, shown in the present instance as a railway car, is provided with a pair of electrical conductors F and F', separated by an insulating piece f and extending along the side of the car parallel with each other and sufficiently far apart to separate and swing the rollers c, c' out of their normal positions as the two conductors carried by the car pass between them. In the form which I have presented, the contact pieces carried by the car consist of long straight strips separated by the strip of insulating material and forming, together with the strip of insulating material, a narrow bar extending along the side of the car from end to end. At its ends said bar of contact pieces is sharpened down to a thin edge or point so as to gradually separate the rollers c, c' whether the car be advancing or running backward. It is intended that the contact pieces F and F' shall extend continuously a distance somewhat greater than the distance between two consecutive sets of rollers c, c' so that a full engagement shall be made with a successive set of rollers before the contact pieces leave a preceding set.

I have shown in dotted lines an electric conductor G extending through the car and including a series of electric lights g. One end of the conductor G is connected with the contact strip F and the opposite end of the said

conductor is connected with the contact strip F'.

It is to be understood that instead of electric lights an electric motor of ordinary structure might be substituted, or both the electric motor and electric lights might be placed in circuit.

The operation is as follows: As the car advances along the track, the contact pieces F and F' will separate the rollers *c*, *c'* and at the same time swing the arms C and C' so as to throw them out of engagement with the spring contact pieces E and E', thus intercepting an electric circuit which is normally complete through the rollers and through said spring contact pieces, and at the same time making the circuit complete through the contact pieces F and F' and the conductor G carried by the car. As soon as the contact pieces F and F' have passed from between one set of rollers *c*, *c'*, the latter will be brought back to their normal positions by a suitable spring *c*² and the circuit will again be complete through them. Before this takes place, however, the contact pieces F and F' will have been brought into engagement with the next succeeding set of rollers and hence there will be at all times a current through the conductor G carried by the car, which current will be the current of the line wire itself, the conductor G being brought consecutively into position and made a part of the line circuit.

From the above it will be obvious that no matter how many cars or trains may be running along the same track, they may each be supplied from the line wire, as the current through it is at no time broken.

What I claim is:

1. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductor carried by the vehicle, of a line wire, swinging arms in-

terposed at intervals in the line wire and forming an essential and permanent part of the line wire circuit, and means for automatically swinging the arms toward one another, the said swinging arms being located in position to be swung away from each other in either of two opposite directions by the passage of the contact pieces carried by the vehicle as it moves along the track, substantially as set forth.

2. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductors carried by the vehicle, of a line wire, swinging arms interposed at intervals in the line wire and forming an essential and permanent part of the line wire circuit, rollers carried in the adjacent ends of the swinging arms, electrically connected contact pieces in position to engage the opposite ends of the swinging arms and means for automatically swinging the arms in one direction, the said swinging arms being located in position to be swung apart by the passage of the contact pieces carried by the vehicle, substantially as set forth.

3. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductor carried by the vehicle, of a line wire supported in sections connected by insulating joints, connecting loops leading from the adjacent ends of the line wire sections, swinging pivoted arms interposed in said loops and forming a permanent part of the continuous line wire circuit and means for automatically swinging the adjacent ends of the arms toward each other, the arms being located in position to receive the contact pieces carried by the vehicle between them, substantially as set forth.

GEORGE L. THOMAS.

Witnesses:

FREDK. HAYNES,
GEORGE BARRY.