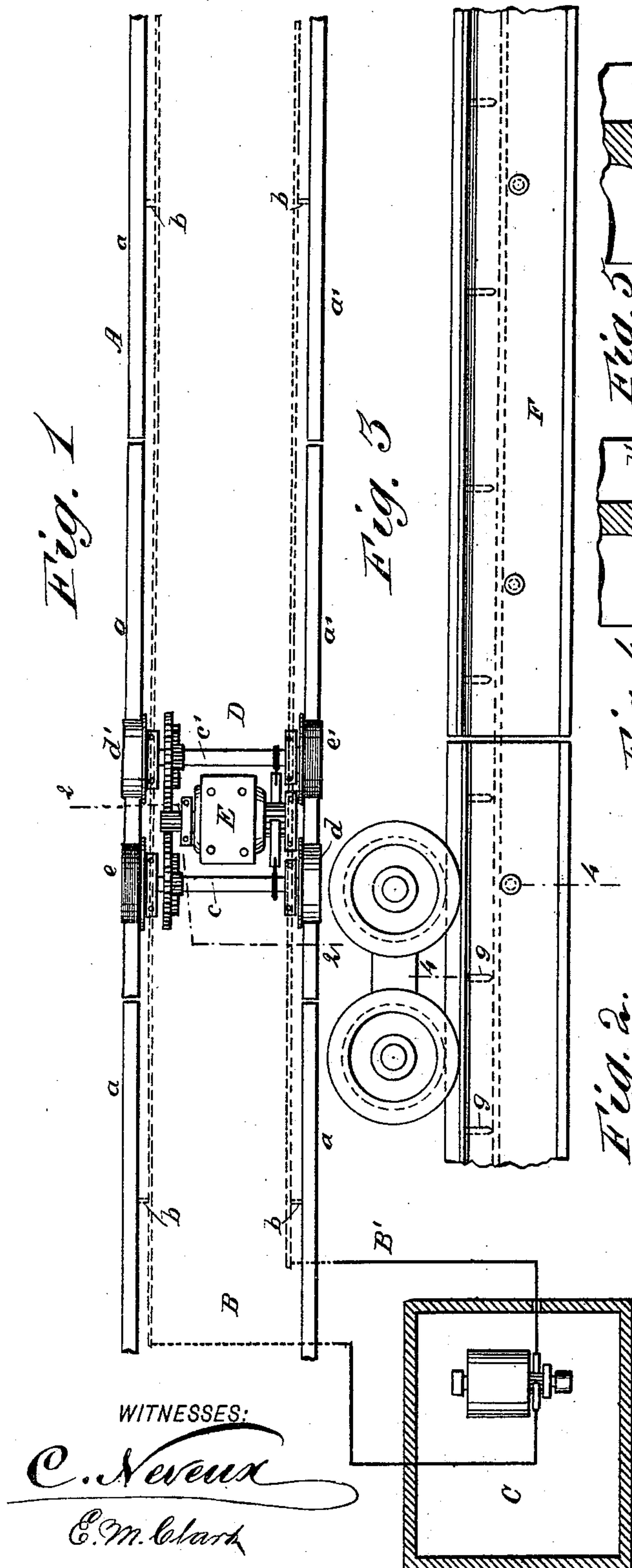


(No Model.)

C. D. TISDALE.
ELECTRIC RAILWAY SYSTEM.

No. 517,940.

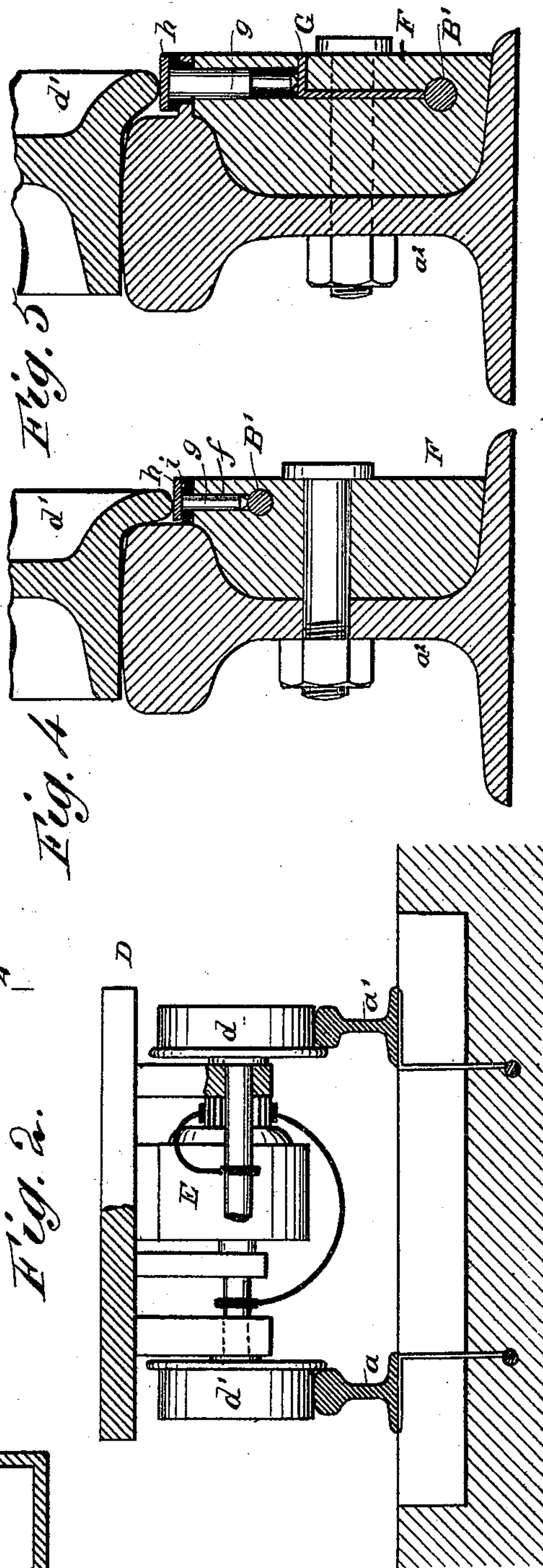
Patented Apr. 10, 1894.



WITNESSES:

C. Neveu

E. M. Clark



INVENTOR

C. D. Tisdale

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES D. TISDALE, OF BOSTON, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF, AND JOHN D. GOULD, OF EAST BOSTON, AND CHARLES HEALEY AND JAMES E. JENKINS, OF LYNN, MASSACHUSETTS.

ELECTRIC-RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 517,940, dated April 10, 1894.

Application filed January 17, 1893. Serial No. 458,632. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. TISDALE, of East Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Electric-Railway System, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view of a section of railway, showing a car truck and locomotive adapted to my improved system. Fig. 2 is an enlarged transverse vertical section taken on line 2—2 in Fig. 1. Fig. 3 is a side elevation of a modified form. Fig. 4 is a transverse section taken on line 4—4 in Fig. 3; and Fig. 5 is a similar section of another modification.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to provide simple and effective means for taking the current from the railway track rails, or from conducting rails carried along with and parallel to the track.

My invention consists in a railway truck provided with an electric motor, and furnished with two paper car wheels and two iron or steel car wheels, the paper car wheels being placed on opposite ends of different axles, with the metallic car wheels arranged diagonally opposite each other, so that electrical contact is made with one of the railway rails through one of the metallic wheels, and similarly an electrical contact is made with the other railway rail by means of the other metallic car wheel.

My invention also further consists in a device for furnishing the current to the motor and returning it to the power station, without the necessity of charging a great length of track or conducting rail.

The railway track A, formed of rails a and a' , is supplied with the current through the main conductors B, B', leading from the power station C, and connected with the sections of the rails by short conductors b . The car truck D is provided with axles c , c' , which are journaled in axle boxes in the usual way. The axle c is provided with a metallic car wheel d at one end and a paper car wheel e at the opposite end. In a similar way the

axle c' is provided with a metallic car wheel d' and a paper car wheel e' . The metallic and paper wheels of the axle c' are arranged diagonally opposite the metallic and paper car wheels of the axle c , so that the paper car wheel e and metallic car wheel d' rest upon the track rail a , while the metallic car wheel d and paper car wheel e' rest upon the rail a' , so that the current in passing from the track rail a to the track rail a' , must pass through the metallic car wheel d' , the motor connected electrically therewith and the metallic car wheel d .

The motor E carried by the truck, takes its current from the axles c , c' , and is geared to the axles in the usual way. I have selected the well known paper car wheel as being the best insulating car wheel for the purpose, but I do not limit or confine myself to this particular kind of insulating car wheel.

To prevent short circuiting the conductors used for carrying the current to the motor, I employ one of the devices shown in Figs. 3, 4 and 5.

In the device shown in Figs. 3 and 4, a rail F, of wood or other insulating material, is secured to the web of the track rail a^2 , by bolts, and rests upon the foot of the rail. The said wooden rail is bored longitudinally to receive the main conductor B', and at frequent intervals are formed holes f , extending from the upper edge of the rail F down to the main conductor B'. In these holes are inserted pins g , connected with the metallic strip h extending along the rail. Between the said metallic strip h and the wooden rail F, is placed a strip i of elastic material, such as soft rubber, the said strip being applied to hold the metallic strip h in an elevated position, thus keeping the pins g normally out of contact with the main conductor B'. In this case the metallic strip h constitutes the conducting rail, and supplies the current to the motor through the metallic wheel d' , the strip h being placed in such relation to the main track rail a^2 , as to allow the flange of the wheel d' to depress the strip h sufficiently to bring the pin g into contact with the main conductor B'.

In the modification shown in Fig. 5, in lieu

of placing the main conductor B' in position to be touched by the pins *g*, contact pieces G are inserted at suitable intervals in the rail F, and connected electrically with the main conductor B', so that when the wheel *d'* rolls over the strip *h*, it brings the pins *g* into contact with the contact pieces G, thus establishing an electrical connection with the main conductor B'. By means of this construction only the portion of the strip *h* which communicates electrically with the main conductor is charged, the remaining portions of the track being neutral. This being the case, it follows that an accidental cross circuit could not be made by vehicles or animals traveling along the track.

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

20 1. In an electric car, the combination with a truck provided with two axles, each axle being furnished with one conducting wheel and one insulated wheel, the conducting wheel of

one axle being arranged diagonally opposite the conducting wheel of the other axle, of a motor attached to the truck frame, and conductors connected with the brushes of the motor and directly with the axles of the truck substantially as herein shown and described, whereby the current flows from one of the track rails through one of the conducting wheels and axle attached thereto, through the motor, through the other axle and the other conducting wheel to the other rail.

2. In an electric railway system, the combination with the railway rail, of a sectional conducting rail *h* provided with contact pins, *g* an elastic support *i* for the conducting rail, *h* a main conductor, B', the contact pieces G and support for the same, substantially as specified.

CHARLES D. TISDALE.

Witnesses:

E. M. CLARK,
C. SEDGWICK.