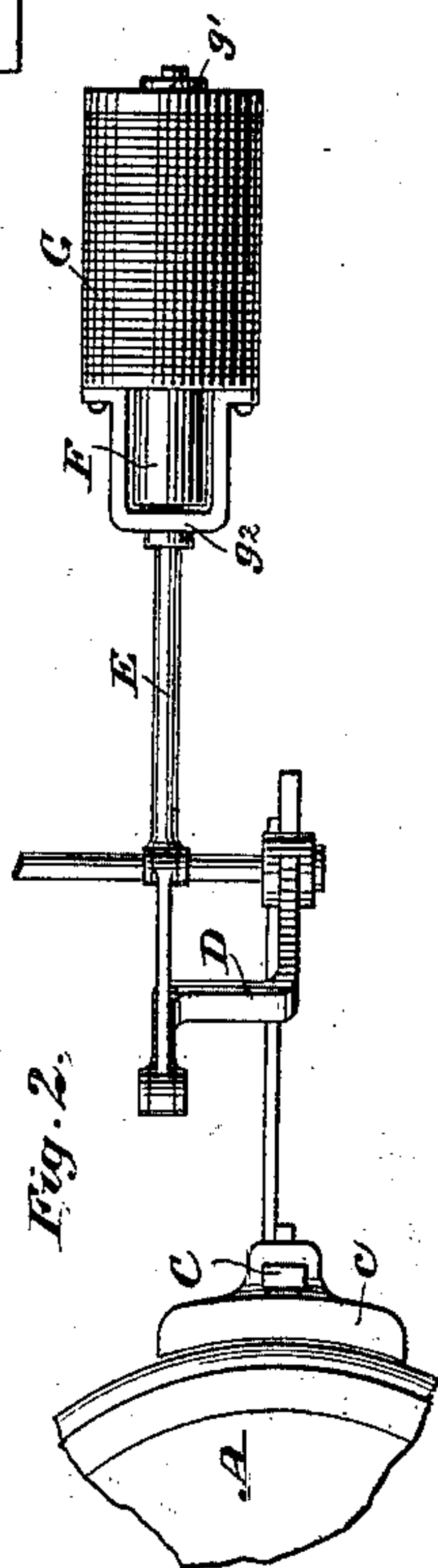
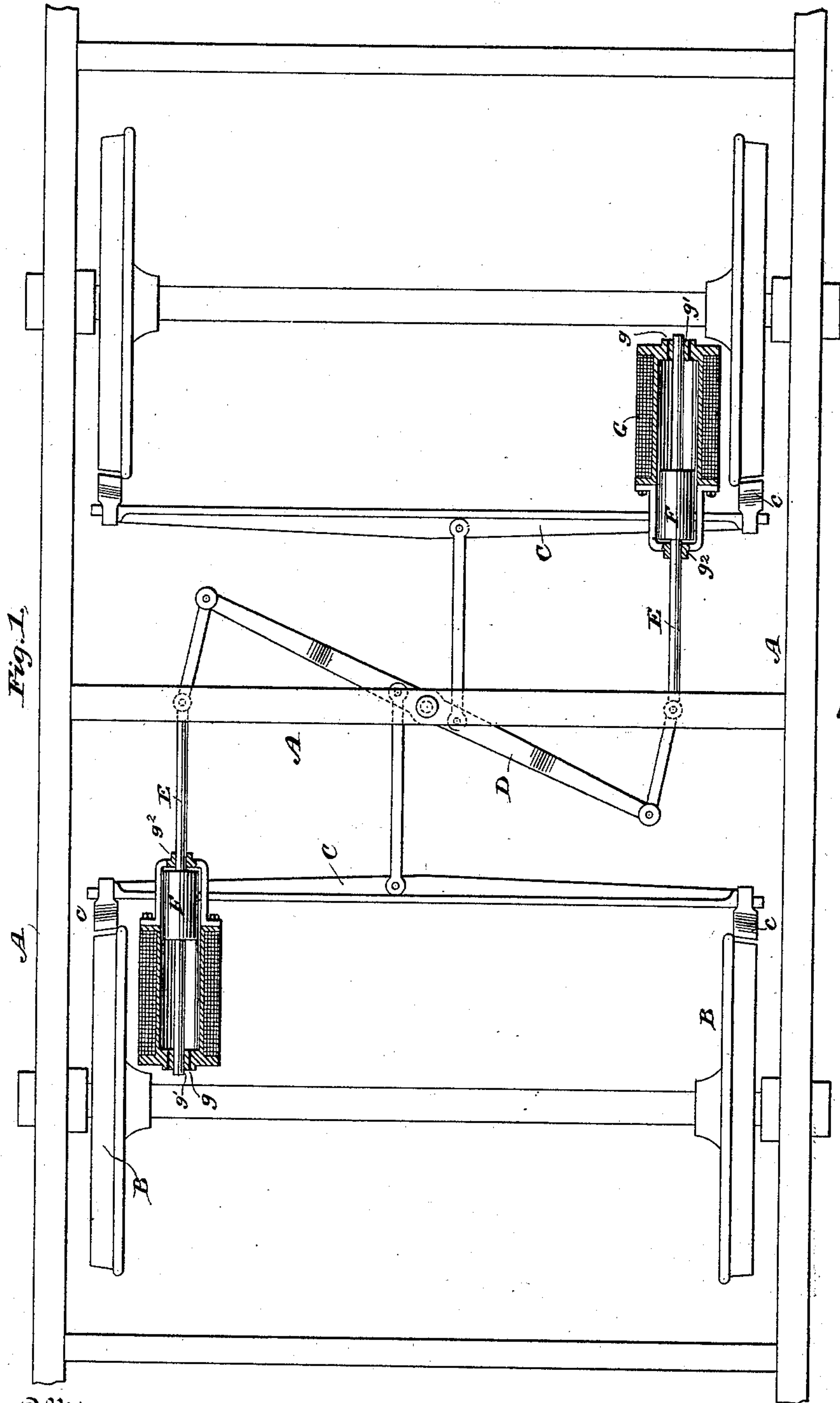


(No Model.)

W. H. DARLING.  
ELECTRIC BRAKE MECHANISM FOR CARS.

No. 418,402.

Patented Dec. 31, 1889.



Witnesses  
Geo. W. Dreck.  
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# UNITED STATES PATENT OFFICE.

WILLIAM H. DARLING, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO LEO BOCK, JR., AND GARDNER P. HARRINGTON, BOTH OF SAME PLACE.

## ELECTRIC BRAKE MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 418,402, dated December 31, 1889.

Application filed March 23, 1889. Serial No. 304,458. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. DARLING, of New York, State of New York, have invented certain new and useful Improvements in Electric Brake Mechanism for Cars, of which the following is a specification.

The object of the invention is to provide an arrangement by which the necessary extent of movement of the brake-shoes and levers may be obtained by means of electricity and the power of the current utilized in an efficient and economical manner.

In carrying out my invention I employ ordinary lever mechanism and shoes and actuate the brake by means of a piston-rod, upon which the armature working within the electric solenoids or electric cylinders is secured.

In the accompanying drawings, Figure 1 is a plan view of a truck-frame of the car, showing the braking mechanism and the electric cylinders or solenoids for actuating the same, the latter being in section. Fig. 2 is a detail side view showing a portion of one wheel.

A represents the frame, and B the carrying-wheels. The transverse brake-beams C, carrying brake-shoes c, are operated to force the shoes against the periphery of the wheels by links connected with a pivoted working-lever D. This is a common construction. On each end of the lever D is a pivoted link, with the end of which a piston-rod E, carrying an armature F, working within an electric cylinder or solenoid G, is connected.

The source of energy for energizing the cylinders or solenoids may be carried upon the

car or derived from an adjacent conductor according to the system of electric traction employed. Illustration of circuit connections and switches is entirely unnecessary, as they are entirely of an elementary character and obvious to any one.

g represents air-holes in the closed end of the electric cylinder, through which air is drawn and expelled for ventilation. The piston-rod has one bearing at g' at the head of the cylinder, and its opposite bearing at the front of the cylinder in a yoke g<sup>2</sup>, bolted to the front face of the cylinder, as clearly illustrated. The drawings are, of course, in many respects diagrams, and the mechanical construction will be adapted to the various forms of trucks.

I claim as my invention—

The combination, substantially as hereinbefore set forth, of the frame and wheels, the system of brake-levers and brake-shoes, the piston-rods connected with the operating-lever of the brake mechanism, the armatures carried by the piston-rods, the electric cylinders, in the closed heads of which the piston-rods have bearings, and the yokes bolted to the front ends of the cylinders, through which the piston-rods extend and which limit the movement of the armatures.

In testimony whereof I have hereunto subscribed my name.

WILLIAM H. DARLING.

Witnesses:

EDWARD C. DAVIDSON,  
H. E. COOPER.