

(No Model.)

2 Sheets—Sheet 1.

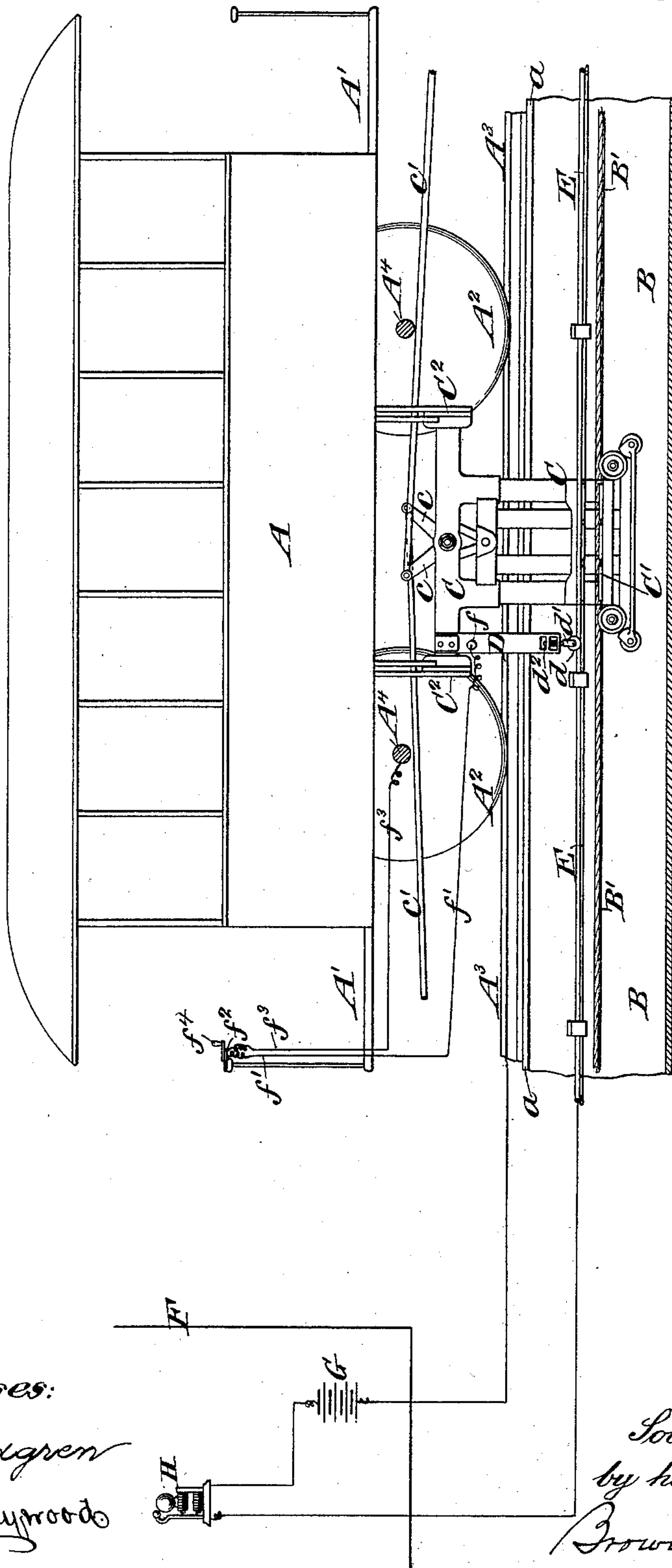
S. J. JACOBS.

ELECTRIC SIGNAL FOR CABLE RAILWAYS.

No. 435,097.

Patented Aug. 26, 1890.

Fig. 1.



Witnesses:

O. Sundgren  
D. H. Haywood

Inventor:

Solomon J. Jacobs.  
by his attorneys  
Brown Griswold





# UNITED STATES PATENT OFFICE.

SOLOMON J. JACOBS, OF NEW YORK, N. Y.

## ELECTRIC SIGNAL FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 435,097, dated August 26, 1890.

Application filed December 12, 1889. Serial No. 333,513. (No model.)

*To all whom it may concern:*

Be it known that I, SOLOMON J. JACOBS, of the city, county, and State of New York, have made certain new and useful Improvements in Electric Signals for Cable Railways, of which the following is a specification.

My improvement relates to means whereby the conductor or brakeman upon a cable-railway car may at will signal a station when assistance may be necessary—as, for instance, when a grip should cease to operate successfully.

I will describe in detail apparatus embodying my improvement, and then point out the novel features in a claim.

Figure 1 is a side elevation of a car, and showing apparatus embodying my improvement, together with a cable-conduit, the latter being shown in vertical section. Fig. 2 is a vertical section of the conduit and certain of the apparatus which I employ, taken at right angles to Fig. 1. Fig. 3 is a vertical section of a certain portion of the apparatus, looking in the same direction as Fig. 2. Fig. 2 is drawn to a larger scale than Fig. 1, and Fig. 3 to a larger scale than Fig. 2.

Similar letters of reference designate corresponding parts in all of the figures.

A designates the car, which may be of any suitable construction. The car is provided with platforms A' and is supported upon wheels A<sup>2</sup>. The wheels rest upon a railway-track A<sup>3</sup>, and are supported upon axles A<sup>4</sup>.

B designates a conduit, which may be of the usual or any desired shape, and is provided upon its upper side with a longitudinally-extending slit *a*, through which portions of the grip extend.

B' designates the cable. The grip may be of any suitable kind, but I have illustrated one of ordinary construction consisting of a fixed jaw C and a movable jaw C'. The jaw C is affixed to hangers C<sup>2</sup> depending from the car in the usual manner. The movable jaw may be raised and lowered by levers *c*, which levers are fulcrumed upon the fixed jaw C, and are operated by means of rods *c'* from cranks or otherwise, as may be desired. Depending from the fixed jaw C is a contact-piece D, here shown as consisting of a bent arm. The arm is metallic and is insulated from the fixed jaw C. Near its lower end it

bears, in the present example of my invention, a spring-actuated roller *d*. This roller is journaled in the forked ends *d'* of a movable piece provided with a shank *d*<sup>2</sup>. The shank *d*<sup>2</sup> extends through a suitable opening in a bearing-piece *d*<sup>3</sup>, formed at the lower extremity of the contact-piece D, and also through a bearing-piece *d*<sup>4</sup> upon said contact-piece somewhat inward of the bearing-piece *d*<sup>3</sup>. Upon the shank *d*<sup>2</sup> inward of the bearing-piece *d*<sup>3</sup> is secured a collar *d*<sup>5</sup>. Between the collar *d*<sup>5</sup> and the bearing-piece *d*<sup>4</sup> a spring *d*<sup>6</sup> is coiled about said shank. The shank will therefore yield, and with it the pulley. The pulley *d* is in contact with an electrical conductor E, in this instance consisting of a rail secured by brackets *e* to one of the side walls of the conduit. These brackets may be of angle-iron, but one of their arms, or that one which is free, is provided with openings *e'* extending through it, which openings are countersunk upon both sides. Pieces or blocks of insulating material *e*<sup>2</sup> are arranged upon opposite sides of this arm of the bracket. Bolts *e*<sup>3</sup>, extending through the blocks of insulating material, and also through the openings *e'*, operate to secure the rail E to the brackets. The diameter of the apertures is considerably greater than that of the bolts, so that the bolts will not contact with the sides of the apertures. The blocks of insulating material also are provided with projections which extend into the countersunk portions of the apertures *e'*. It will thus be seen that the rail is effectually insulated from the brackets and from the conduit, and that shifting of the insulating-blocks is prevented.

Upon the contact-piece D is a binding-post *f*. From the binding-post *f* a line-wire *f'* extends to a circuit-closer *f*<sup>2</sup>, located upon the car, here shown upon the dash-board. This circuit-closer may be of any suitable kind. In electrical contact with one of the axles A<sup>4</sup> bearing a pair of wheels, is a line-wire *f*<sup>3</sup>, which line-wire also extends to the circuit-closer *f*<sup>2</sup>.

F designates a station.

G designates a battery located at the station, and H a signal, which may be of the ordinary bell type, also located at the station. The signal is in circuit with the conductor E, the battery G, and the rail A<sup>3</sup>, upon which

the car-wheels run. When circuit is closed at the circuit-closer  $f^2$  by means of a switch  $f^4$ , a signal will be given at the station, the circuit being through the conductor E, the contact-piece D, the circuit-closer  $f^2$ , the axle  $A^4$ , the wheel  $A^2$ , and the rail  $A^3$ . Should the grip upon the car fail to work properly, or if from any other cause it should be desirable to call assistance from the station, the conductor or brakeman has but to close circuit at the circuit-closer, and the proper signal will be given from the car, which will summon the desired assistance.

What I claim as my invention, and desire to secure by Letters Patent, is—

As part of an electric circuit, the combina-

tion, with a stationary arm depending from the car through the grip-slot and bent laterally within the conduit, and a conductor secured along the wall of the conduit, of a yielding roller carried by the arm in constant contact with the conductor, insulating material forming a seat for the conductor and extending through openings in a supporting-bracket, and the supporting-bracket and fastening-bolts, the latter extending through the openings in the brackets within the insulating material, substantially as set forth.

SOLOMON J. JACOBS.

Witnesses:

FREDK. HAYNES,  
L. J. KELLOGG.