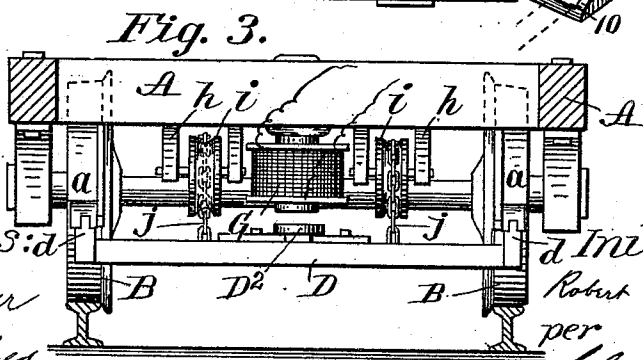
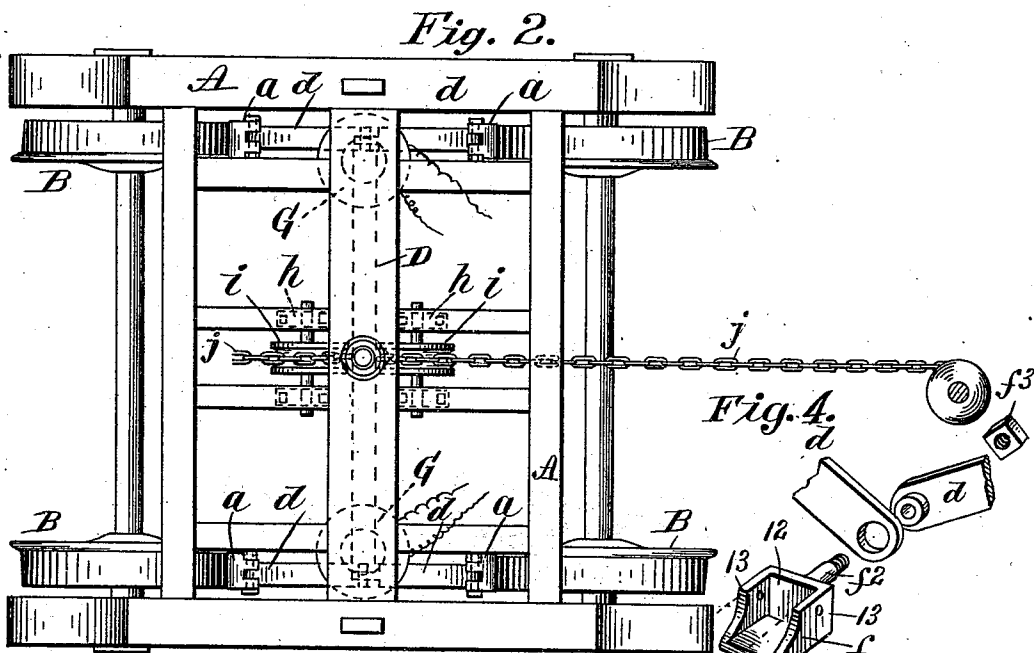
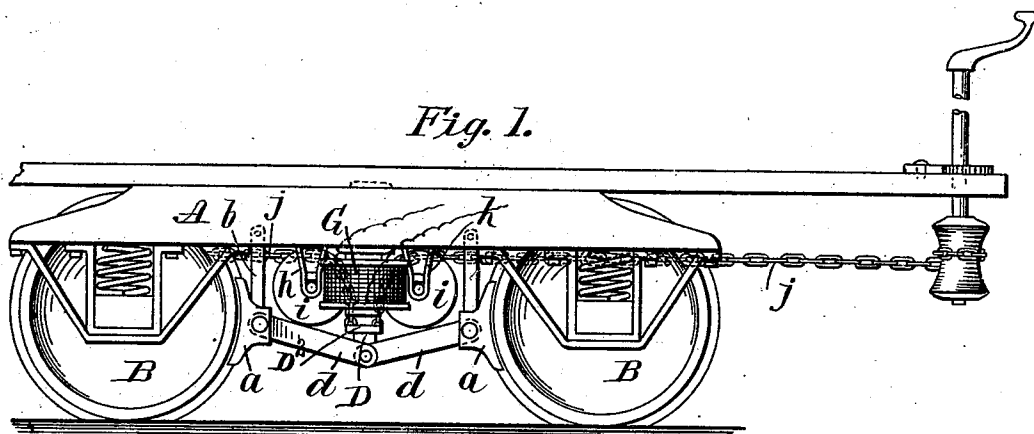


(No Model.)

R. S. HAINES.
CAR BRAKE.

No. 514,926.

Patented Feb. 20, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT S. HAINES, OF SAVANNAH, GEORGIA, ASSIGNOR OF ONE-HALF TO
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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 514,926, dated February 20, 1894.

Application filed September 29, 1893. Serial No. 486,763. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. HAINES, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented new and useful Improvements in Brakes for Railway-Cars, of which the following is a specification.

This invention relates to improvements in brake mechanism for street railway cars, more especially electric street cars.

The object of the invention is to devise a simplified and more direct way of utilizing the movement of the armature of a properly controlled electro-magnet for effecting the setting of the brakes.

The object of the invention is to also devise a brake mechanism which is primarily designed to be operated electrically, with, however, a supplemental device having parts in common with the electric mechanism whereby at pleasure, or when the current is not available, the brakes may be set by hand. And the invention therefore consists in certain particular or improved combinations and arrangements of parts, all substantially as will hereinafter fully appear and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which Figure 1 is a side elevation of the improved electro-mechanical brake mechanism applied upon a car-truck. Fig. 2 is a plan view of the same. Fig. 3 is an end view of the mechanism with a slight modification in arrangement to be hereinafter noted. Fig. 4 is a representation in perspective of parts in detail to be hereinafter referred to.

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

In the drawings, A represents the truck-frame with suitable pedestals, as usual, in which are journaled the axles of the car-wheels, B B. The brake shoes, a, are suspended next to the rims of the wheels by the suspension links, b, the upper ends of which, are pivotally connected to the truck-frame. Each side pair of brake-shoes is united by the pairs of connected links or toggles, d, d, and these are transversely united by the beam, D, which is pivotally connected at their intermediate joints, this beam being properly con-

structed to constitute an armature. Directly above and in working proximity to the beam-armature are one or more electro-magnets, G, they being supported by, and depending from, the truck-frame with the lower ends of their cores exposed.

The electro-magnets have the proper current wires running thereto and therefrom whereby the magnets may be energized by the available source of electrical supply, in a normal and well known manner, and of course it is plain that when and during the time that the electro-magnets are energized the movement and maintenance of the beam armature onto the electro-magnets causes the straightening out of the toggles and the setting of the brake-shoes.

I prefer to make the beam-armature of a bar of wood with a strip, bar, or block, D², of steel or iron upon the top thereof. The connection between the wooden beam and the toggle-links at their intermediate joint may be made by providing shoes or castings, f, on the ends of the wooden beam which are insulated from the armature section, D², and which have studs, f², which pass through the perforated ends of the links, d, the extremities of these studs being screw-threaded for the reception thereon of the confining nuts, f³. The shoe may comprise a base, 10, outer end, 12, opposite side walls, 13, 13, and the said stud, f², all integrally cast, forged, or otherwise formed. The ends of the beam fitted in the shoe may be secured by transverse bolts or rivets.

The truck-frame is provided with the two pairs of small hangers, or pedestals, h, h, above and near to the beam-armature in which are journaled the sheaves, i, i.

A chain or chains, j, is connected to the beam-armature it running upwardly over the sheave and thence horizontally to the end of the car to its connection with the usual vertical winding brake-shaft which is hand operated. The chain or chains hold the beam-armature from overturning on their pivots which connect them with the joints of the toggles, the said beam being an element in common in the brake mechanism whether electric or mechanical.

The brake mechanism hereinbefore ex-

plained is of extreme simplicity, the armature-beam connected and arranged, as described, relative to the toggle-levers and in direct working proximity to the cores of the electro-magnet or magnets, being especially advantageous and desirable.

In Figs. 1 and 2 it will be perceived that there are provided two electro-magnets,—one at each side of the truck-frame above each end portion of the beam-armature, while in Fig. 3 only one electro-magnet is shown, it being arranged at the center of the truck-frame and over the middle of the beam-armature. Both of these arrangements are efficient, one being perhaps more practicable than another under certain circumstances, depending upon various constructions of trucks and the arrangements in connection therewith of the electric motors for propelling them.

I am aware that brake-shoes have heretofore been set upon the car-wheels by the straightening of toggle-levers; I am also aware that brake-shoes have been set by having the levers connected thereto operated in an indirect way by the movement of the armature of an electro-magnet, and I am also aware that brake-levers have been normally held off from the car-wheels by the constant current through a solenoid, acting against a spring applied for effective pressure to set the brakes,—the de-energizing of the solenoid permitting the brake setting springs to react; but none of these arrangements, constructions, or modes of operation do I claim, but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination with the truck-frame and the car-wheels, of the brake-shoes and the links pivotally connected to and suspended from the truck-frame and supporting the

shoes, the pairs of links or toggles connecting the shoes, and the transverse bar or beam which unites the pairs of toggle-links at their middle joints and which is constructed to constitute an armature, and an electro magnet supported by, and depending from, the top of the truck-frame and in direct working proximity to the electro-magnet, substantially as described.

2. The combination with the car-wheels, of the brake-shoes and the suspension links therefor, of the jointed links or toggles connecting side pairs of the shoes, a beam transversely extending between the said toggles at their intermediate joint, and supported by the pivot studs thereat and which is constructed as an armature, and one or more electro-magnets supported by the truck-frame above and in direct working proximity to the said beam-armature, substantially as described.

3. The combination with the car-wheels and the truck-frame having the depending links and the brake-shoes pivoted at the lower ends thereof, the toggle-links between and connecting side pairs of the shoes, the cross-beam in the form of an armature connecting the pairs of toggle-links at their intermediate joint, one or more electro-magnets supported by, and depending from, an upper part of the truck-frame in direct working proximity to the said beam-armature, and the pedestals depending from the top of the truck-frame with the sheaves therein, and the chains connected to the beam-armature, and running up over said sheaves, and thence to the hand windingshaft, substantially as described.

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Witnesses:

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