

(No Model.)

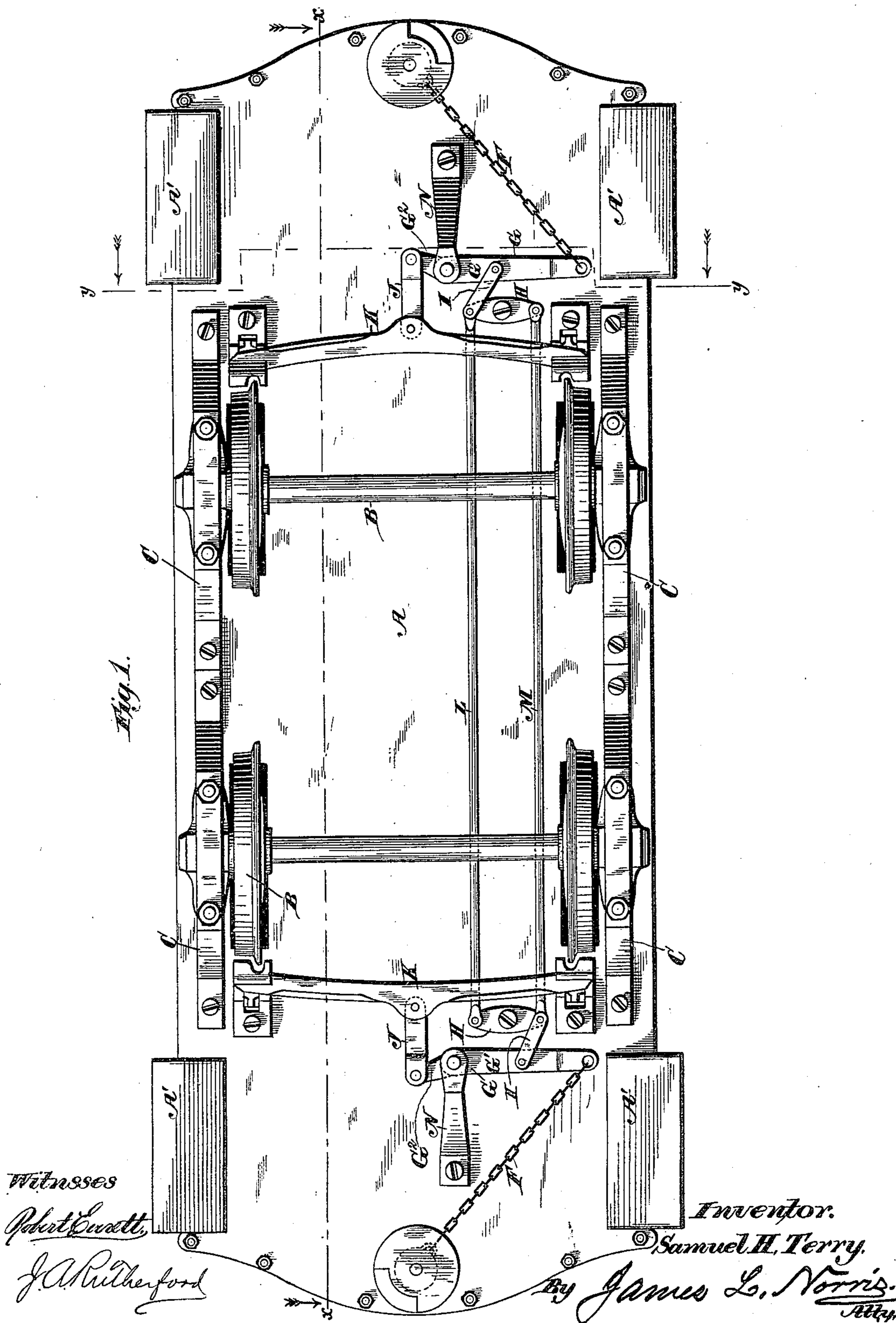
2 Sheets—Sheet 1.

S. H. TERRY.

CAR BRAKE.

No. 270,507.

Patented Jan. 9, 1883.



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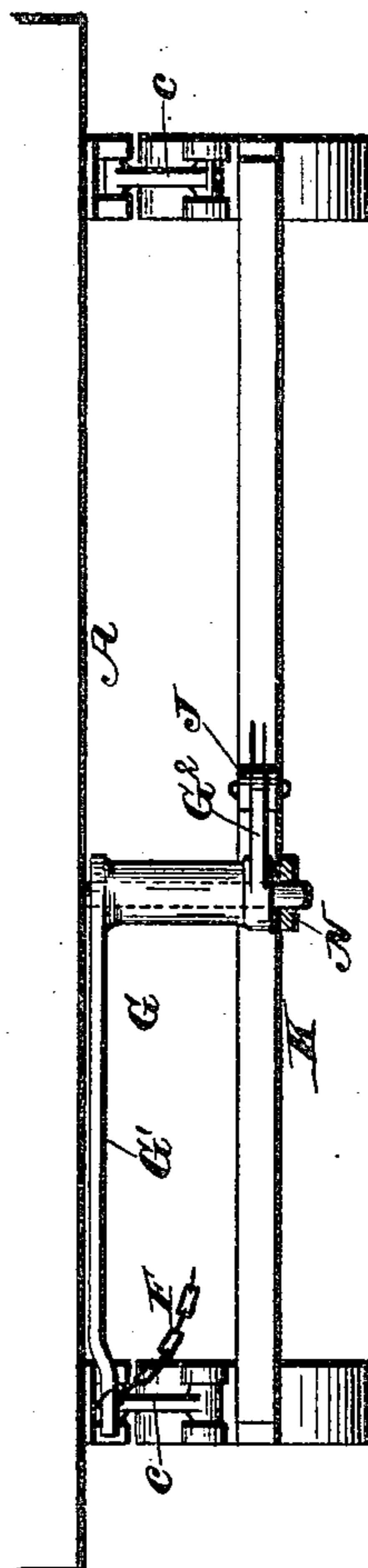
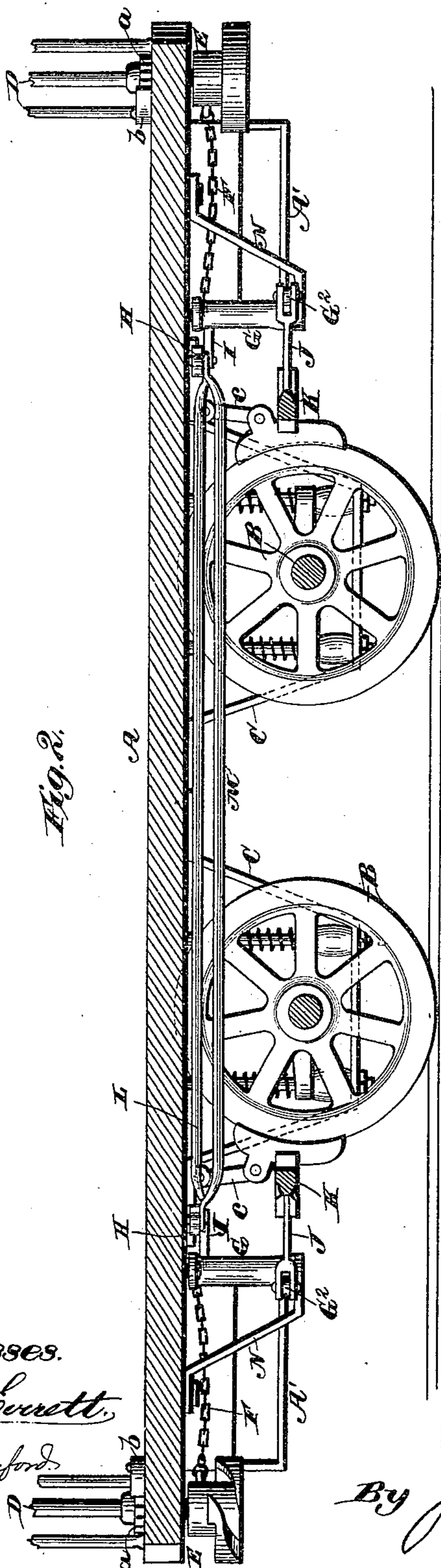
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Witnesses.
Robert Everett.
J. A. Rutherford.

Inventor:
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By James L. Norris: Atty.

UNITED STATES PATENT OFFICE.

SAMUEL H. TERRY, OF CHICAGO, ILLINOIS.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 270,507, dated January 9, 1883.

Application filed April 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. TERRY, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Car-Brakes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is an under plan or bottom view; Fig. 2, a longitudinal section on line *xx* of Fig. 1; and Fig. 3, a transverse sectional view on the line *yy* of Fig. 1, to more clearly illustrate the construction of the main brake-lever.

The object of this invention is to bring the brake-bars up on a level with or above the wheel-axle, so as not to come as close to the pavement in the street-railway or to the track or the permanent way in an ordinary railroad, and to carry the connecting-rods or links off to one side of the car, so that a cable-gripper, an air-cylinder, or a heater may be centrally located under the car, clear of the brake.

My invention consists in a lever pivoted under the car-body, between the end thereof and the brake-bar, and composed of an elevated long arm and a short arm arranged below the plane of the latter, combined with a rotating extension of the hand-wheel or crank-shaft, a chain connecting the long arm of the lever with the shaft-extension, and a link connecting the short arm of the lever with the brake-bar, all in such manner that the winding of the chain draws the long arm of the lever, and through its short arm and the link pushes the brake-bar toward the car-wheels to apply the brake-shoes thereto. The invention embraces other features, which will be hereinafter described and claimed.

In the drawings, A indicates the bottom or bed of a street-car; having steps A'; B, wheels and axles; C, brackets for supporting the body of the car on the axles; D, shafts for the hand-wheels or cranks; E, lower shaft-extensions upon which the chains are wound; F, chains; G, the main brake-levers; H, balance levers or bars; I, links connecting the bars H with the levers G; J, links connecting the lever G with the brake-bars; K, brake-bars; L M, rods or bars connecting the levers H together; N, brackets for supporting the levers G; *a b*, wheel and ratchet for locking the shaft D of the hand-wheel; *c*, links or chains supporting the brake-bars K.

The levers G are formed by making them as shown—that is, the part at the fulcrum or pivot is a short shaft, solid or hollow, as may be most convenient for attaching it, and it is so attached that the long arm G', with which the chain F is connected, is close to the body of the car, while the short arm G², with which the brake-bar is connected by the link J, is so attached to the lever as to be in a plane at a distance below the plane of the long arm, (see Fig. 3,) so that while the long arm moves in close proximity to the bottom of the car the short arm is brought to a lower position at or near a level with the transverse brake-bar. This lever, in the form shown, is held by the bracket N, which is the most convenient form when the central part of the lever G is in the form of a solid shaft. When the central part is hollow a strongly-attached pin, without the bracket, will hold it in place. The lever G, with its chain F, and the hand-wheel shaft are sufficient to operate a single brake-bar; but it is desirable to operate all of the brake-bars from either end of the car, and for this purpose each end of the car is provided with a lever, G, and between these levers short levers or balance-bars H are placed, as shown, and they are connected with the levers G by the links I, and they are connected together by the long links or rods L M, so that whenever either one of the levers G is operated a corresponding movement is communicated to the other lever G by these balance-bars with their rods and links, so as to set both brakes by the winding of the chain F upon either hand-wheel shaft or extension E, thus making for a street-car or four-wheeled car a convenient and efficient brake which has all of its parts up out of the way of the pavement or track.

The connecting devices between the two levers G may be located on either side of the car, so as to leave a free access to the center from either side, as may be desired, while the center is left clear for the purpose of attaching and applying operative parts for cable-gripper cylinders, for operating air-brakes, car-heaters, ventilators, or other devices, as may be desired.

The brake-bars K are provided with the ordinary brake-shoes, and are held in place by the ordinary links, *c*, which links, in a street-car, are attached to the bottom of a car, in the

usual manner, and to a two-truck car, in the ordinary way, to the trucks. This arrangement of the horizontal levers, the high location of the brake-bars, and the location of all of the connecting parts of the brake-levers above the axles, allows the car to run over obstacles with less danger to the car and over persons with less liability to fatal results, and it also enables me to detach the wheels and axles from the car, when jacked up for that purpose, without removing the brakes or any portion thereof, which is a great advantage in repairing or changing wheels and axles.

For a two-truck car having the body attached to the trucks by king-bolts or pivots, four levers G will be required, a pair with their connecting parts being attached to each truck, substantially as herein shown for a street-car; but in a two-truck car the two pairs will be connected by an additional set of levers or bars, H, and rods L M, attached to the bottom of the car at one side, in which case the two trucks may be operated from either end of the car.

By hanging the brake-bars K with the link c inclined so that the brake-bars, with their shoes, will fall away from the wheels by gravity when the pressure is released, a direct connection between the short arms of the levers G and the brake-bars K may be made, so as to dispense with the links J; but I prefer to use the links even though they should be made very short. When the levers G are applied to trucks, the pivot-shaft or bend may be made longer so as to bring the long arms above the trucks, and their connecting parts placed above or on top of the truck or trucks.

It will be observed that the lever G is pivoted to the under side of the car-body between the end of the car and the brake-bar, the arrangement being such that when the hand-wheel or crank-shaft extension E is rotated to wind up the chain F the long arm of the lever will be drawn outward and the short arm

thrown inward, which, through the link J, 45 pushes the brake-bar toward the car-wheels, thus applying the brakes by a uniform pushing action in contradistinction to a pulling action; and, further, the arrangement is such as to provide an exceedingly simple contrivance for effecting a powerful leverage on the brakes with a minimum of power. 50

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a car-brake, the lever G, pivoted under the car-body, between the outer end thereof and the brake-bar, and composed of an elevated long arm, G', and a short arm, G², arranged below the plane of the latter, combined with a rotating shaft-extension, E, the chain F, connecting the long arm of the lever with the said extension, and a link, J, connecting the short arm of the lever with the brake-bar in such manner that the winding of the chain draws the long arm of the lever and pushes the brake-bar to apply the brakes, substantially as described. 55 60 65

2. The combination of the two levers G with the pivot-bars H, links I, and rods L M, for connecting the levers together, substantially as set forth. 70

3. The combination and arrangement of the horizontal levers G and brake-bars K with the horizontal levers or balance-bars H, links I, and rods or links L M, arranged at one side of the car or truck and above the axles, substantially as and for the purpose specified. 75

4. The combination and arrangement of the shafts D E, chains F, horizontal levers G, and brake-bars K with the balance bars or levers H, links I, and connecting rods or bars L M, located above the axle and at one side, so as to leave a free central space, substantially as described. 80

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