

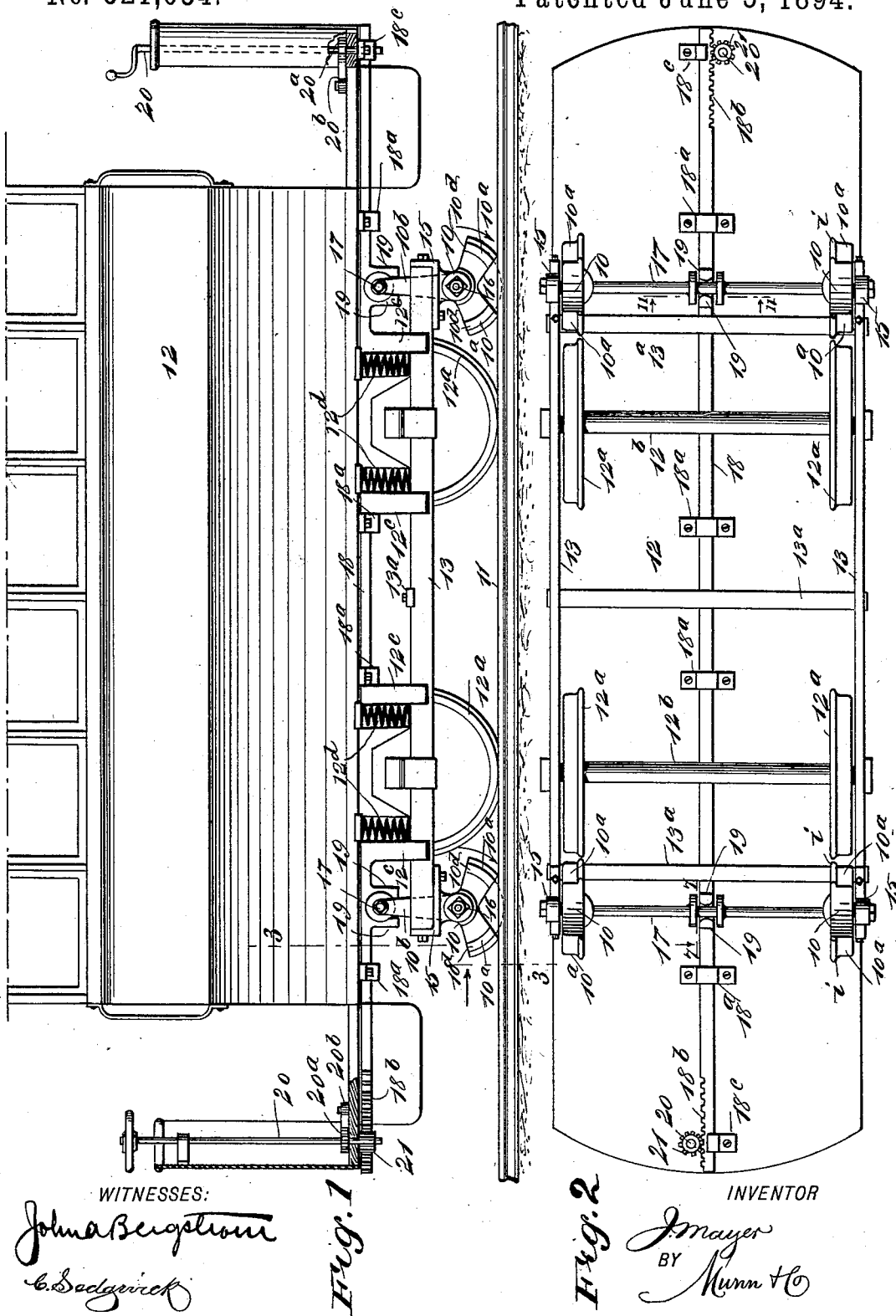
(No Model.)

3 Sheets—Sheet 1.

J. MAYER.
CAR BRAKE.

No. 521,034.

Patented June 5, 1894.



WITNESSES:

John A. Berghouse
C. Sedgwick

Fig. 1

Fig. 2

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ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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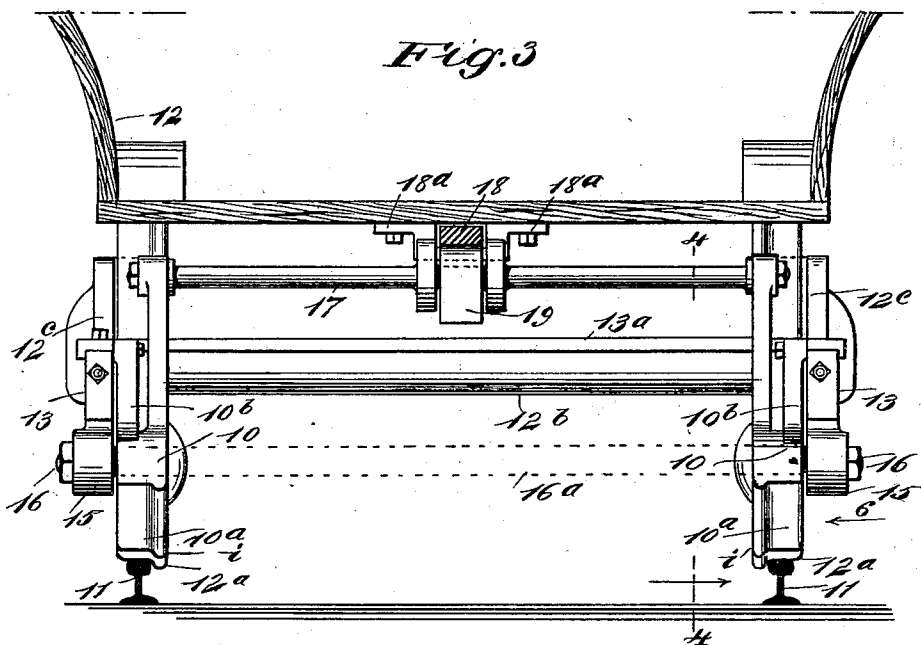


Fig. 4

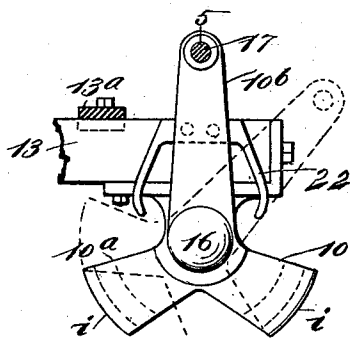


Fig. 5

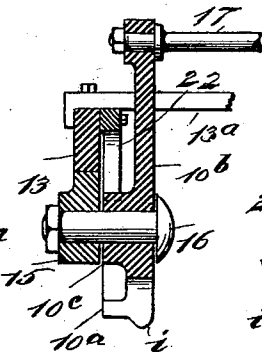


Fig. 6

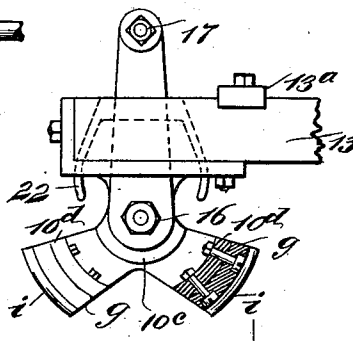


Fig. 8.

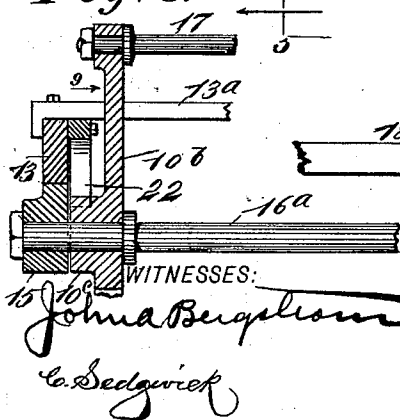


Fig. 7

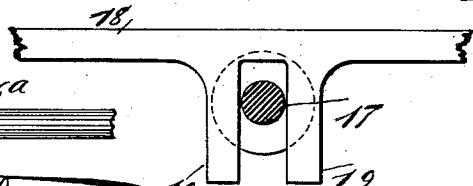
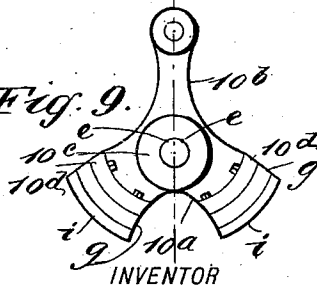


Fig. 9.



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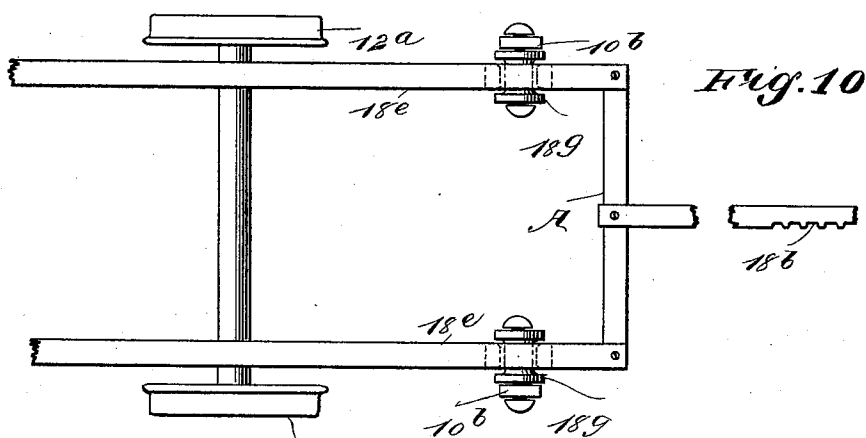


Fig. 10

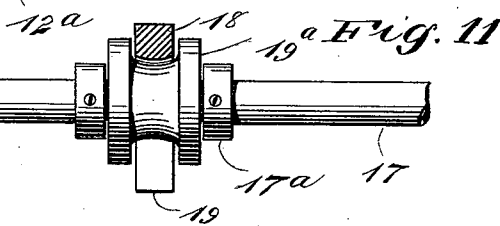


Fig. 11

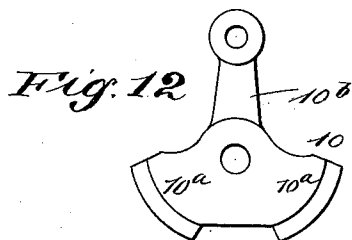


Fig. 12

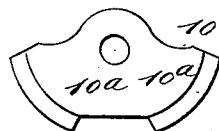


Fig. 13

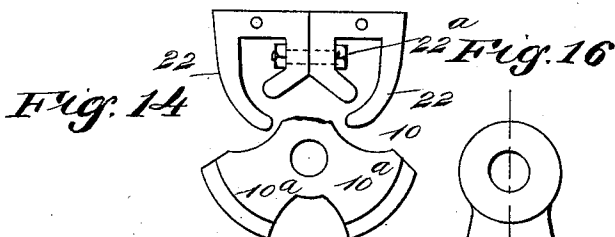


Fig. 14

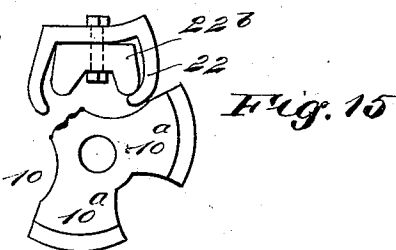


Fig. 15

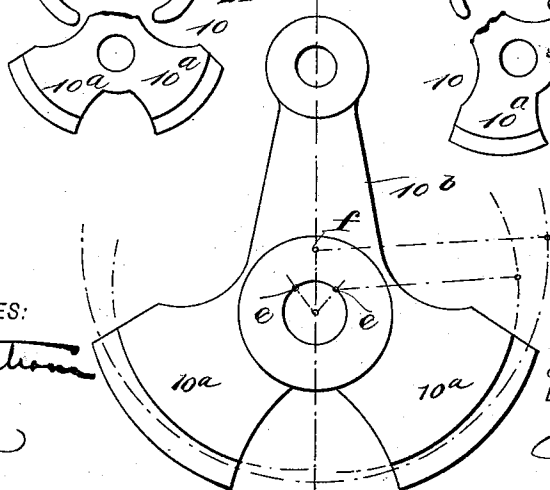


Fig. 16

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN MAYER, OF AMSTERDAM, NEW YORK.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 521,034, dated June 5, 1894.

Application filed February 6, 1894. Serial No. 499,254. (No model.)

To all whom it may concern:

Be it known that I, JOHN MAYER, of Amsterdam, in the county of Montgomery and State of New York, have invented a new and useful Improved Car-Brake, of which the following is a full, clear, and exact description.

My invention relates to improvements in car brakes, and more particularly to those employed to check or arrest the motion of street railway cars; and has for its object to provide a novel, simple appliance for street cars or other railroad cars, which will afford means for checking or completely arresting the progressive movement of a car, in a speedy, reliable and safe manner.

To these ends, my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views shown.

Figure 1 is a partial side view of a car, a railroad track in part, and the improved brake mechanism on the car. Fig. 2 is a reverse plan view of the car and the improved brake thereon. Fig. 3 is a transverse sectional view, on the line 3—3 in Fig. 1. Fig. 4 is a partly sectional side view of details, on the line 4—4 in Fig. 3. Fig. 5 is a transverse sectional view on the line 5—5 in Fig. 4. Fig. 6 is a partly sectional side view of details representing parts opposite the arrow 6 in Fig. 3, slightly changed in construction. Fig. 7 is an enlarged partly sectional view of details on the line 7—7 in Fig. 2. Fig. 8 is a transverse sectional view of parts on the line 5—5 in Fig. 4, showing one feature slightly changed in form. Fig. 9 is an outer face view of a part indicated by the arrow 9, in Fig. 8, showing said part somewhat altered in form as compared to the representation of the same detail in Fig. 6. Fig. 10 is a detached plan view in part, of modified details for the manipulation of the improved car brake. Fig. 11 is an enlarged partly sectional view of a modified detail on the line 11—11 in Fig. 2. Figs. 12 and 13 are detached side views of modifications of the part shown in Figs. 4, 6 and 9. Fig. 14 is a detached side view of an altered form of a cushion spring that is part of the improved

car brake. Fig. 15 represents another modification of the cushion springs; and Fig. 16 is an enlarged diagrammatic side view of a contact block indicating methods of construction thereof.

The essential features of this improved car brake, comprise the peculiarly constructed frictional contact blocks 10, devices to support said blocks above the track rails 11, near the car wheels 12^a, and means to rock the blocks so as to cause them to have more or less bearing upon the top faces of the track rails, and thus brake the car 12.

The specific construction of the improvement is as follows:—The car 12, which may be any form of passenger or freight car, but for purposes of illustration is represented as a street railway car, has its wheels 12^a, supported on transverse axles 12^b, as usual, the latter being rotatably sustained on the car frame by pedestal boxes that have a sliding engagement with depending pedestal jaws 12^c.

The preferred means for retaining the improved brake mechanism in working position on a street railway car, consists primarily in the provision of two longitudinally extended carrier bars 13, which are loosely secured between the lower ends of the pedestal jaws 12^c, extending at their ends beyond said jaws of a suitable length to receive parts of the brakes, the carrier bars being braced by the transverse stay bar 13^a, said carrier bars affording a seat for the car-springs and elastically sustained thereby.

The blocks 10, which are the most essential portions of the novel brake mechanism, each comprise a body formed of any suitable material having three members 10^a, 10^b, 10^c, these portions of the body radiating from a hub 10^e, that is centrally perforated at right angles to the plane of the vertical limb 10^b, as shown in Figs. 4, 6 and 9, or the blocks may be shaped as shown in Figs. 12 and 13. The two members or arms 10^a, are divergently and downwardly projected, at equal angles from a line drawn through the center of the hub 10^e and upright limb 10^b, and each of said arms has a laterally projected and peripherally curved flange 10^d, formed on it, or the block may be of an equal thickness throughout its area and dispense with the lateral flange shown in Figs. 5 and 8. The radii of

the curved flanges 10^a, may have a center in common with the center of the hub 10^c, or their centers may be located at each side of said center and above it, as indicated in Figs. 9 and 16, at *e*, or above the center of the hub 10^c, as at *f*, in Fig. 16, thereby producing cam faces on the block that are near the pivot center of the hub at their inner terminals, as indicated by the curved and dotted lines in Fig. 16.

One of the blocks 10 is suspended from the carrier bars 13 near each wheel 12^a, by a hanger arm 15, which arms are secured to the bars by bolts or other means, and are transversely perforated near their lower ends to receive the end portions of studs 16, that are journaled in the perforated hubs 10^c of the contact blocks 10, as shown in Fig. 5, or each pair of oppositely located hanger arms and contact blocks may be loosely connected together, by a cross shaft such as 16^a, one of which shafts is shown broken in Fig. 8, and also indicated by dotted lines in Fig. 3. The divergent arms 10^a, or cam portions of the blocks, are preferably furnished with removable wearing pieces which are represented at *g*, in Figs. 6 and 9, said removable portions or shoes being composed of any suitable material that will be durable, and afford a reliable frictional face for the arms. The upright limbs 10^b, of the contact blocks 10, are in pairs perforated an equal distance from the pivotal centers of said blocks, for the reception of the ends of the transverse connecting rods 17, that are furnished with collars and nuts which engage opposite sides of the perforated upper ends of the said limbs, whereby two opposite blocks are firmly joined at their upper terminals and thus adapted to rock together.

The proportion of parts that have been described is such as will permit the curved faces of the contact blocks, to avoid contact with the track rails 11, when the limbs 10^b, are located in vertical planes, a rocking movement causing the convex faces of said flanges to have a frictional contact with the top surface of the track rails, and as shown a peripheral rib *i* is produced along the inner edge of each convex face to prevent a lateral movement of the blocks 10, when their engagement with the track rails is enforced.

A preferred means for transmitting a simultaneous rocking movement to all the contact blocks 10, from the car platforms, consists of a pusher bar 18, that is loosely secured by clip plates 18^a, or like means, near the transverse center of the car body, on its lower side, which longitudinally extending bar is about equal in length with that of the car and its platform, as indicated in Figs. 1 and 2. At points that will locate them above the connecting rods 17, two pairs of parallel depending jaws 19 are formed on or secured to the pusher bar 18, each pair of jaws loosely embracing one of said rods, as represented in Figs. 1, 2, 3 and 7, so that a longitudinal move-

ment of the pusher bar will rock the pairs of contact blocks 10. It is of advantage in some cases, to employ the anti-frictional rollers 19^a, which are retained in place on the rods 17, by the collars 17^a, these facilitating the movement of the pusher bar. See Fig. 11. Two gear toothed racks 18^b, are formed on or secured upon the pusher bar 18, at opposite side edges near each end of the bar.

On each platform of the car near the dasher, and about at its transverse center, the vertical brake shaft 20, is erected and rotatably sustained by bracket boxes or like means, the lower end of each shaft being loosely projected through an aperture in the platform. On the lower end portion of each shaft 20, a toothed pinion 21, is affixed, which pinions are in meshed engagement with the racks 18^b, the latter being loosely supported by clip plates 18^c, as shown in Figs. 1 and 2. On the upper ends of the shafts 20, crank levers or hand wheels are secured, which afford means for manually rotating the shafts in a proper direction, and upon the shafts near the upper surfaces of the platforms a ratchet toothed wheel 20^a, is mounted and secured to each shaft, a pawl 20^b pivoted on the platform near each ratchet wheel being provided to permit a locking engagement of said pawls with the ratchet wheels.

When the brakes are to be used for checking speed and arresting motion of the car to permit the entrance and exit of passengers, the shaft 20 at either end of the car is rotated so as to rock the contact blocks 10, in the direction of the curved arrows in Fig. 1, which will cause the convex faces of the arms on said blocks that are nearest the arrows mentioned, to approach and bear upon the upper surface of the track rails, the frictional resistance thus produced effecting the retardation and stoppage of the car without jar.

Should it become necessary to retain the car in one position for a period of time in excess of the ordinary service requirements, the ratchet and pawl mechanism may be effectively employed for such a purpose.

As it may not always be practicable on account of machinery below the floor of an electric or other car, to place the pusher bar 18 at the transverse center of the car body, the rectangular frame A, shown in Fig. 10, may be utilized, and if used this will afford two parallel bars 18^c that are longitudinally arranged, and supported to slide endwise, by the anti-friction rollers 18^d that are mounted on studs that project from the upper ends of the limbs 10^b, the connecting rods 17 being in this case dispensed with, and from the ends of the frame the racks 18^b are extended for service as before explained.

In case of impending collision, or the possibility of running over or upon a person on the track ahead of the moving car, and a sudden arrest of forward motion is necessary to avert the danger, the operator then manipulates the lever or hand wheel of the brake

shaft 20, so as to bring the other arms of the contact blocks into service. When these arms are caused to impinge upon the track rails, the bite of their convex faces upon said rails will adapt them to act as cams that lift the car body from the track, transmitting the entire weight of the car thereto, which will almost instantly stop the car.

When urgent necessity requires the nearly instant stoppage of the car, and the forward cam surfaces of the contact blocks have been brought into action as just explained, the inertia of the car will hold the rear sides of said contact blocks against the finger springs as indicated in Fig. 15, which will cause the car to slide along the track rails on the forward contact cam faces, while the wheels of the car are entirely relieved from impinging on the rails until the car is stopped, when the force of gravity will throw the car wheels upon the track, and release the brakes.

Preferably there is a cushion spring 22, provided for each contact block 10, which springs are clearly shown in Figs. 4, 5, 6 and 8, each comprising two depending fingers that are so curved near their lower ends, that they will be adapted to have contact with the divergent arms 10^a, so as to cushion the impact of the latter upon the track rails. The fingers of the springs 22, may be integrally joined together at their upper ends, or be formed separately by return bending them and connecting the parts by a bolt 22^a, as may be preferred, and gum cushions may be introduced between the lower ends of the spring fingers and the contact blocks, as indicated at 22^b in Fig. 15, if this is desired. When the springs are made as shown in Fig. 14, their inner ends serve as stops, to prevent an excessive spring movement, and when the fingers are constructed to serve as stops, with interposed elastic cushions, the fingers and cushions must be securely affixed upon the carrier bars 13.

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

1. In a car brake, a series of contact blocks

hung from the car, each block comprising an upright limb and two divergent arms having convex lower faces, the blocks being supported to rock near the junction of the arms and limb, and said limb being adapted to receive rocking adjustment, substantially as described.

2. In a car brake, the combination with a car, of a series of contact blocks hung from the car over the track rails, each block having an upright limb, and two divergent arms the lower faces of which are convex, the blocks being pivoted near the junctions of their arms and limbs, and a device on the car adapted for manipulation at each end of said car, and arranged to rock the blocks in either direction, substantially as described.

3. In a car brake, the combination with a car, of series of contact blocks hung therefrom over the track rails, and adapted to have contact therewith, each block comprising an upright limb and two depending divergent arms, the blocks being pivoted near the junctions of their arms and limbs, a cushion spring for each block, having two stop limbs, and a device on the car adapted for manipulation at each end of said car, and arranged to rock the blocks in either direction, substantially as described.

4. In a car brake, the combination with a car, and hanger arms thereon, of series of contact blocks pivoted on said arms, each block having an upright limb, and two depending divergent arms the lower faces of which are convex, a transverse rod connecting each pair of opposite blocks at the upper ends of their upright limbs, a longitudinal pusher bar held to slide on the car bottom, a toothed rack at each end of the bar, forks on said bar embracing the connecting rods, an upright rotatable brake shaft at each end of the car, a pinion on each shaft, meshing with the racks, and means to rotate the shafts, substantially as described.

JOHN MAYER.

Witnesses:

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WILLIAM P. HOVER.