(No Model.) 2 Sheets—Sheet 1.

# W. G. PRICE.

## STREET CAR BRAKE.

No. 572,824. Patented Dec. 8, 1896.

Fig. 1.

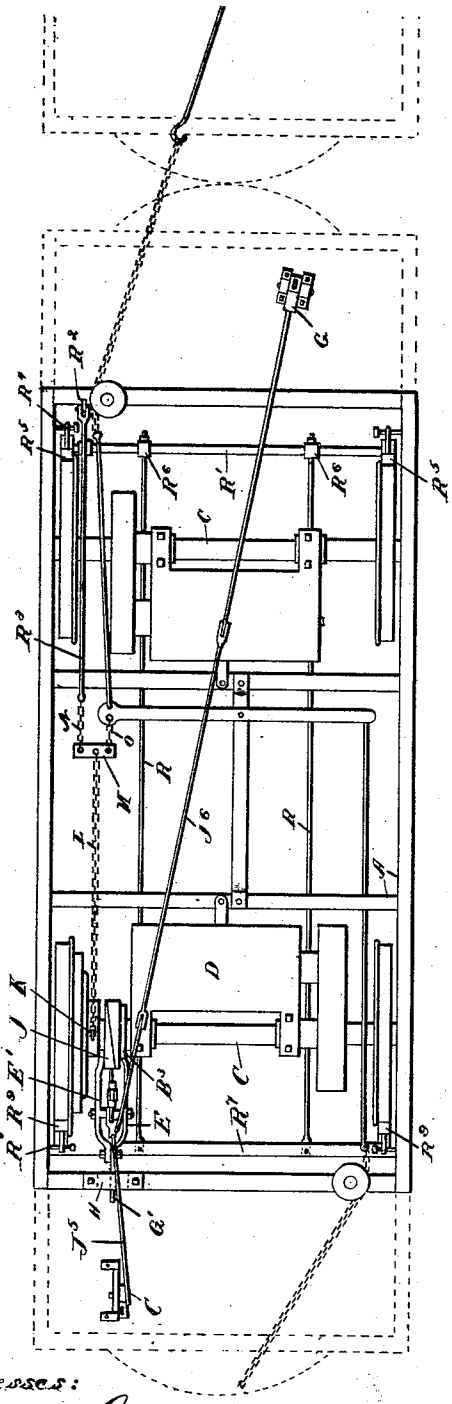
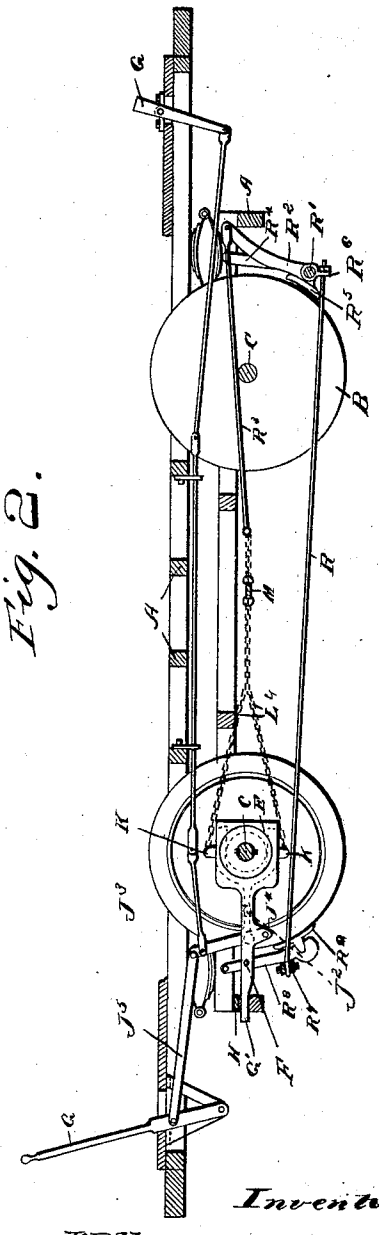


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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## STREET CAR BRAKE.

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Fig. 5.

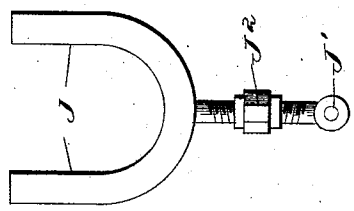



Fig. 4.

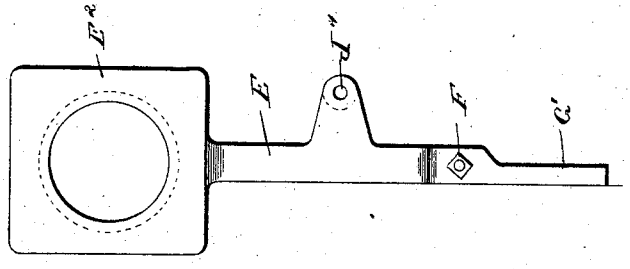
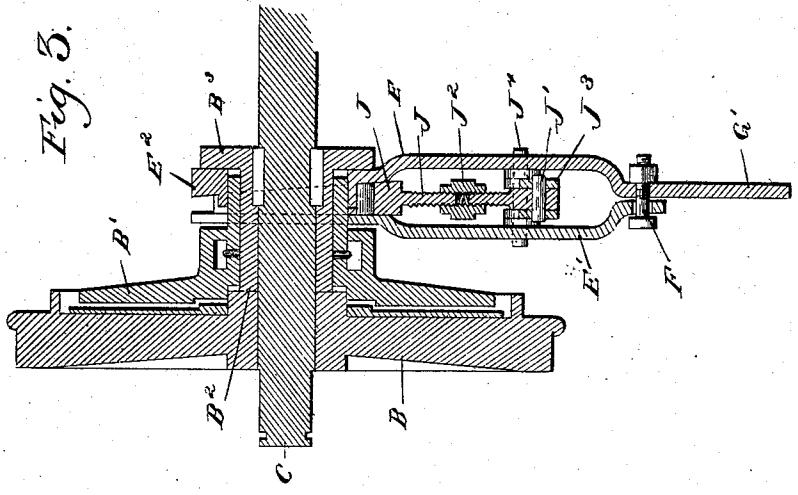



Fig. 3.

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# UNITED STATES PATENT OFFICE.

WILLIAM G. PRICE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO MENARD K. BOWEN, OF SAME PLACE.

## STREET-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 572,824, dated December 8, 1896.

Application filed June 8, 1896. Serial No. 594,740. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM G. PRICE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Street-Car Brakes, of which the following is a specification.

My invention relates to car-brakes, and has for its object to provide certain improvements in car-brakes, and is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of the car with my device attached. Fig. 2 is a longitudinal section with parts removed. Fig. 3 is a horizontal section through the particular mechanism whereby the brakes are set. Figs. 4 and 5 are details.

Like parts are indicated by the same letter in all the figures.

A is the car-frame; B B, the wheels; C, the axle; D, the motor; E E, the brake-beams connected by the rod F; G G, the brake-handles pivoted on the car-frame.

B′ is a friction-disk opposed to the car-wheel and preferably mounted so as to rotate on the sleeve $B^2$ on the axle C, and $B^3$ is a fixed collar or stop on the axle. Between the fixed collar or stop and the disk are placed the two relatively-movable pieces E E′, which are provided each with the portion $E^2$ to surround the axle and sleeve, the two parts being loosely held together by the bolt F and one of them having a projecting part G′, which is loosely supported on the car-frame at H. These two parts constitute a sort of frame, the two forward members of which are interposed between the disk and the stop. The part $E^2$, associated with the part E, is beveled or provided with an inclined face.

J is a bifurcated wedge, two limbs of which surround the sleeve or axle and are beveled, as indicated in Fig. 3, and adapted to be inserted between the two movable and separable pieces E E′. The part J is pivoted at J′ to the short bar $J^3$, the two members of its handle portion being adjustably connected by the coupling $J^2$. The short bar $J^3$ is pivoted at $J^4$ to downwardly-projecting lugs and connected at its upper end to the rod $J^5$, which leads to the brake-handle G. Associated with the disk B′ are the lugs K K, whence lead the chains L to the evener M, from the two ends of which lead the chains N O, whence suitable connection is made with the several brake-beams or other devices which may be employed for the actual braking of the car.

R R are rods connecting the two brakes. The brake-beam R′ is rigidly connected with the arm $R^2$, to which the rod $R^3$ is attached at its upper end, this rod being connected by the chains with the clutch.

$R^4$ is a hanger whereby the brake-beam R′ is suspended from the frame.

$R^5$ is the shoe.

$R^6$ is the downwardly-depending end of the lever $R^2$ or the downwardly-depending part associated with the brake-beam R′. The opposite brake-beam $R^7$ is supported on the hangers $R^8$ and carries the shoe $R^9$. The rod R connects these brake-beams, one below and the other above the shoe. In other words, the leverage on the shoe is different in the two cases, and therefore a much greater pressure is applied to the shoe $R^5$ than to the shoe $R^9$.

I do not describe all the features of the device, for some of them form no part of this invention and some have been sufficiently described in an application of even date herewith.

It is evident that by operating either of the brake-handles the rod $J^3$ will be rocked on its pivot and the wedge-shaped piece J will therefore be moved back and forth with reference to the two movable parts between which it slides. If it is moved upwardly, referring to the illustration of Fig. 3, it is obvious that it will separate the two parts and thus will force the friction-plate against the wheel, whereupon it will rotate, draw down the brake chains and rods, and set the brakes. The two movable parts are loosely connected and loosely supported on the frame, so that they may have a motion with reference to each other and a motion with reference to the car. Since the forcing of the wedge-shaped piece between the two movable parts will tend to move the parts in the opposite direction, it is necessary that this latter motion be resisted, and in the device illustrated I resist this action by making the portion $E^2$ of the part E entirely surround the axle or

hub of the disk or the sleeve on which it may be mounted.

It is important to have, and this is one of the objects of my invention, an arrangement whereby a different pressure may be put on the brake associated with the clutch mechanism as compared with the brake not associated directly therewith, and the clutch device operates to a certain extent as a brake, and the braking effect on the two sets of wheels or at the two points where the brakes are applied from the car should be equal. This is necessary to prevent the sliding of the wheels which carry the friction-disk. The braking power of the friction-disk is equal to about forty per cent. of the braking power of the two shoes which are applied to the axle at the opposite end of the car. We thus have to reduce the pressure on the shoes at one end of the car forty per cent.; otherwise these wheels would slide when the other wheels were being braked to only sixty per cent. of their full capacity.

As previously indicated, I do not wish to be limited to the precise mechanism shown or the particular arrangement of parts. I understand that great variations can be made without departing from the spirit of my invention, and I wish it distinctly understood that many of such changes I have contemplated and more, doubtless, can be suggested which would still come within the spirit of my improvement.

The portion $E^2$ is provided with a projecting end piece which projects under the part J, said part J resting thereon. This construction prevents the wear of the sleeve by the part J.

I claim—

1. In a brake device the combination of a wheel with a disk adapted to be frictionally held against the wheel and when rotated to set the brakes, a fixed stop or collar on the axle, two movable parts interposed between the disk and the stop, and a wedge-shaped device adapted to be inserted between the movable parts and to separate them, one of said movable parts provided with a projecting end which extends beneath said wedge-shaped piece and acts as a bearing for the same.

2. In a brake device the combination of a wheel with a disk adapted to be frictionally held against the wheel and when rotated to set the brakes, a fixed stop or collar on the axle, two movable parts interposed between the disk and the stop, and a wedge-shaped piece adapted to be inserted between the movable parts and to separate them, the two movable parts loosely connected and loosely supported on the frame of the car.

3. In a brake device the combination of a wheel with a disk adapted to be frictionally held against the wheel and when rotated to set the brakes, a fixed stop or collar on the axle, two movable parts interposed between the disk and the stop, and a wedge-shaped piece adapted to be inserted between the movable parts and to separate them, the wedge connected with one of the movable parts.

4. In a brake device the combination of a wheel with a disk adapted to be frictionally held against the wheel and when rotated to set the brakes, a fixed stop or collar on the axle, two movable parts interposed between the disk and the stop, and a wedge-shaped piece adapted to be inserted between the movable parts and to separate them, the wedge connected with one of the movable parts, said movable part supported in a comparatively fixed relation to the axle.

5. In a brake device the combination of a car-wheel with a friction-disk adapted when rotated to set the brakes, a stop or collar on the axle, two movable parts interposed between the collar and the disk, one of them surrounding and thus secured to the axle, a wedge adapted to be forced between the two parts to set the friction device, said wedge consisting of two projecting arms, one on each side of the axle, substantially as described.

6. In a brake device the combination of a car-wheel with a friction-disk adapted when rotated to set the brakes, a stop or collar on the axle, two movable parts interposed between the collar and the disk, one of them surrounding and thus secured to the axle, a wedge adapted to be forced between the two parts to set the friction device, said wedge connected to the brake-handle through one of the movable parts.

7. In a brake device for street-cars a friction device on one axle opposed to a wheel, which winds up a chain or rope so as to apply the brake-shoes to the car-wheels, means provided to reduce the pressure or braking power on one set of brake-shoes to an amount approximately equal to the friction or braking power of the friction device.

8. In a brake device, the combination of two sets of brakes proper adapted to operate at different points, and a frictional device for setting the brakes associated directly with one of such braking devices, the braking effect of the frictional device and associated braking device being approximately equal to the braking effect of the other braking device.

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