

No. 610,676.

Patented Sept. 13, 1898.

**J. H. GRAHAM.**

# BRAKE MECHANISM FOR RAILWAY CARS.

(Application filed May 6, 1895. Renewed Feb. 12, 1898.)

(No Model.)

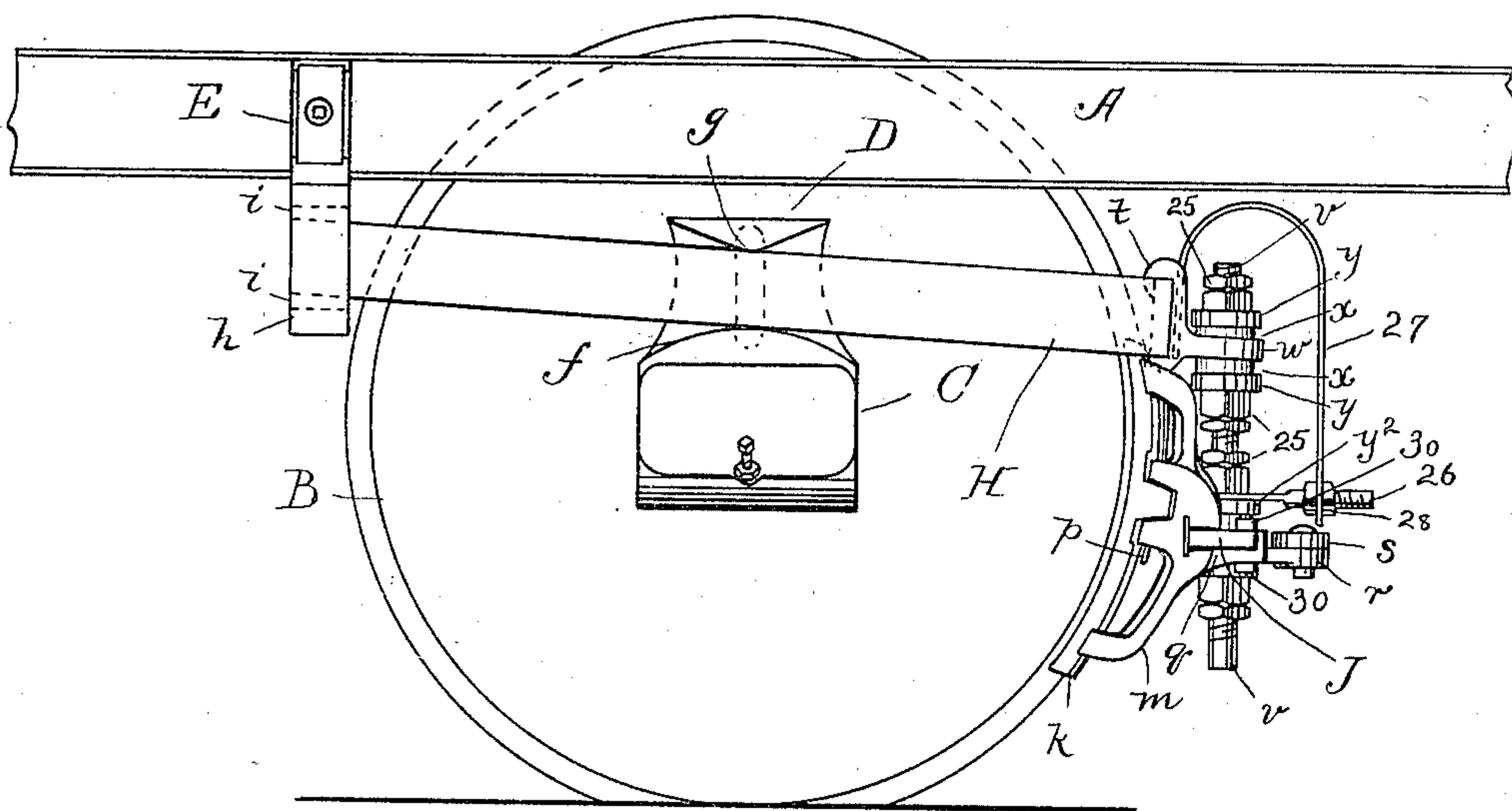


Fig. 1.

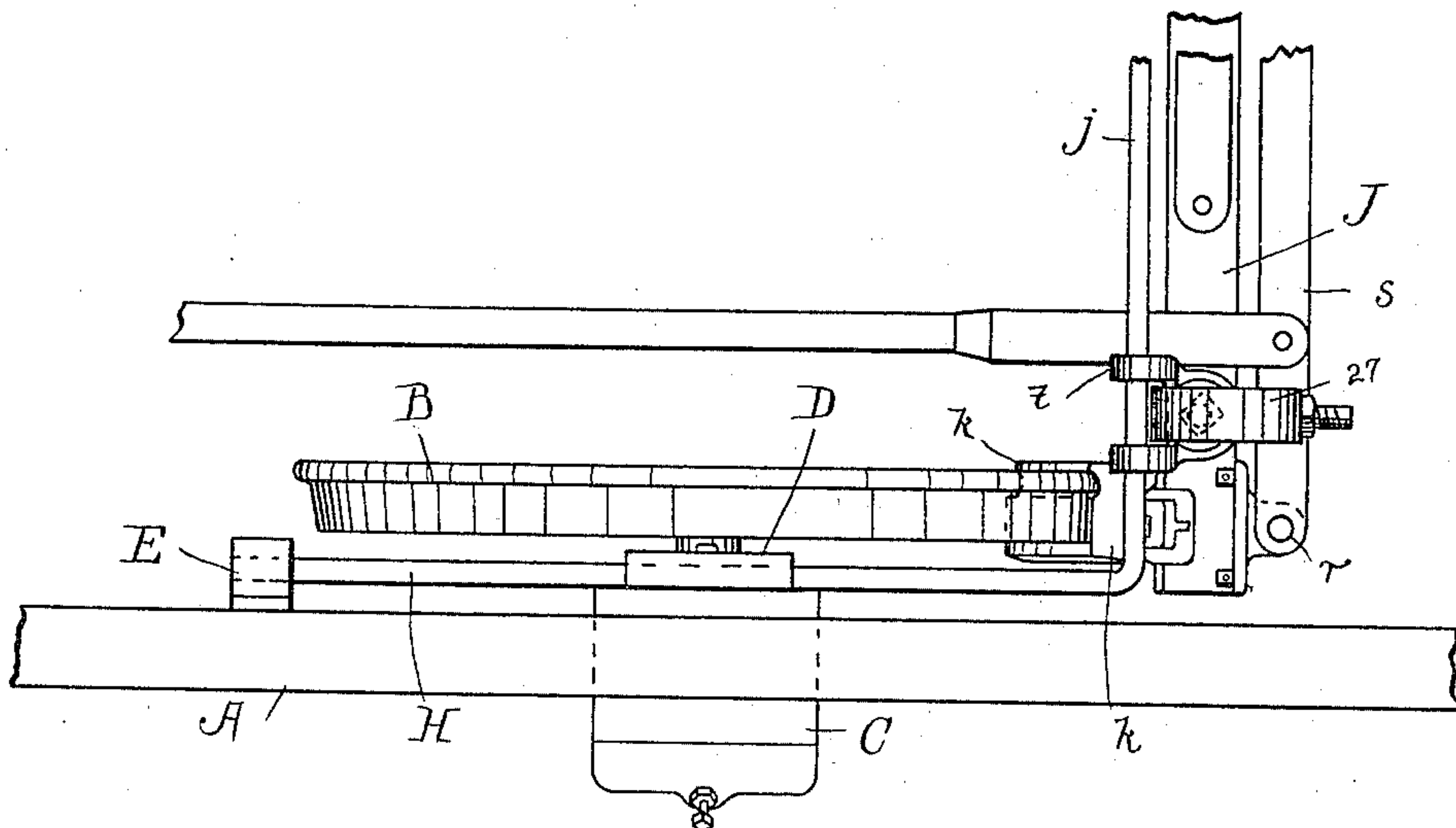


Fig. 2.

WITNESSES.

Matthew M. Blunt  
Chancellor

INVENTOR.

INVENTOR.  
John H. Graham,  
By W. Shaw.  
ATT'Y.

ATTY



# UNITED STATES PATENT OFFICE.

JOHN H. GRAHAM, OF BOSTON, MASSACHUSETTS.

## BRAKE MECHANISM FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 610,676, dated September 13, 1898.

Application filed May 6, 1895. Renewed February 12, 1898. Serial No. 670,145. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. GRAHAM, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and  
5 useful Improvements in Brake Mechanism for Railway-Cars, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make  
10 and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved brake mechanism, and Fig. 2 a top plan view  
15 of the same.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to a device  
20 for compensating for the variations in the positions of the brake-shoe as the load on the truck changes.

Much difficulty has heretofore been experienced in many brake mechanisms from the  
25 fact that as the load on the car increases the brake-shoes drop and when the strain on said shoes is imparted it acts in such line on the wheels that the trucks are tilted. This seriously affects the truck mechanism and car-springs and causes a jolting motion to the  
30 car-body. My invention overcomes these objections, and in carrying it out I make use of means which will be readily understood by those conversant with such matters from the  
35 following explanation.

In the drawings, A represents the I-beam frame of the truck, B the wheel, and C the axle-box considered as a whole.

The arch-bars and pedestals are omitted in  
40 the drawings, as they do not pertain directly to my present improvement.

On the upper end of the box C and cast integral therewith there is a vertical boss D. This boss is grooved longitudinally in its  
45 outer face, the bottom *f* of said groove being arc-shaped, as best shown in Fig. 1, and the top of said tube flaring outwardly from a point *g* at the center. The trucks C are supported on the axle-boxes in the ordinary manner. A  
50 clip E is bolted to the I-beam directly in front of the wheel. These clips below the

I-beams are provided with sockets *h*. It will be understood that one of these sockets is disposed on each side of the car.

An approximately U-shaped beam H has  
55 its ends disposed in the sockets *h* of the clips E, so that they can rock therein, said ends being cushioned above and below with rubber blocks. The arms of the U-beam fulcrum in the lugs D on the arc-shaped bottom *f* of  
60 the lug-grooves. This beam passes laterally across the car behind the wheels *j* and above the shoes. Said shoes are secured by keys or pins *p* in the frames *m* in the usual manner. The frames have laterally-projecting  
65 lugs *q*, to which the brake-beam J is bolted, said beam running transversely of the car in the usual manner. The lugs *q* are extended rearwardly, forming eyes *r*, to which an end of the brake rod or bars *s* is pivoted, said rod being  
70 actuated by any of the ordinary methods.

On the transverse portion *j* of the U beam or lever H clips *t* are fast adjacent the wheels. These clips form brake-hanger supports and are provided with an eye *w*. The vertical  
75 brake-hanger bolts *v* pass through these eyes and the brake-beam J, which is supported thereby. The hangers are screw-threaded and pass loosely through the clip-eyes. Rubber seats *x*, held in engagement with the eye  
80 by washers *y* and nuts 25, cushion the lateral play of the hanger. Similar rubber seats 30, held between washers *y*<sup>2</sup>, cushion the beam J. From the hanger-bolt above the upper washer *y*<sup>2</sup> a threaded arm 26 projects rear-  
85 wardly.

A U-shaped release-spring 27 has one end fast to the pivoted beam H by the clip *t*, its opposite or free end being adjustably held  
90 on the arm 26 by check-nuts 28. These springs are compressed when the brakes are set and serve to disengage the shoes from the wheels when the brakes are freed.

In the use of my improvement when the car is light the pedestal-springs elevate the  
95 truck, carrying with it the inner ends of the pivoted beam H, fulcrumed on the axle. This drops the shoes below the horizontal center of the wheels. The truck being loaded, the beam H rocks and elevates the shoe to sub-  
100 stantially the center of the wheel or at the best point for quick and effective braking.



The shoes are held out of actual contact with the wheels at this point by the release-springs 27. By this mechanism I find in practice that the brakes can be set by a partial revolution of the brake-handle, whereas in many of the ordinary forms several such revolutions are required to stop the car. As described, the wheels tending to rotate when the brakes are set and the car in motion causes the trucks to tilt by moving the brake-beam vertically under this pressure. This force in either direction is equalized by the use of my beam H, pivoted on the axle-boxes, so that its fulcrum cannot change vertically independently of said boxes, and having its ends pivotally connected to the truck-frame at the side of the wheels opposite the shoes. Moreover, this method of supporting the shoes directly from the axle overcomes in a great degree the pounding or jarring of the wheels incident to the use of many brake mechanisms. It will be understood that the ends of the equalizing-lever H may be connected directly to the body of the car in many forms of truck wherein the I-beams constitute the sills of the car-body without departing from the spirit of my invention.

Having thus described my invention, what I claim is—

1. In a car-brake an approximately U-shaped lever fulcrumed on the axle-boxes and having its ends pivotally connected with

the truck-body in combination with devices for supporting the brake-shoes from said lever.

2. In a car-brake a lever fulcrumed on the axle-box and flexibly connected to the truck-body in combination with a hanger flexibly connected with said lever and carrying the brake-shoe.

3. In a car-brake the lever fulcrumed on the axle-boxes and connected with the truck-frame in combination with the hanger supported from said lever; the flexible seats for said hanger; the brake-beam carried by said hanger and the shoes connected to said beam.

4. In a car-brake the axle-box, C, having the lug, D, grooved to form a fulcrum in combination with the lever mounted in said groove to rock and having an end pivotally connected to the truck-body; and the shoe carried by said lever.

5. In a car-brake the axle-boxes and truck frame or sills in combination with the lever, H, pivoted to said frame and fulcrumed on said boxes; the brake-beam carrying shoes; the hangers attached to said lever; and the springs secured to said lever and tensioning said hangers all being arranged to operate substantially as set forth.

J. H. GRAHAM.

Witnesses:

O. M. SHAW,  
A. K. CLAFHAM.