

(No Model.)

2 Sheets—Sheet 1.

A. BARKER.
CAR BRAKE.

No. 543,716.

Patented July 30, 1895.

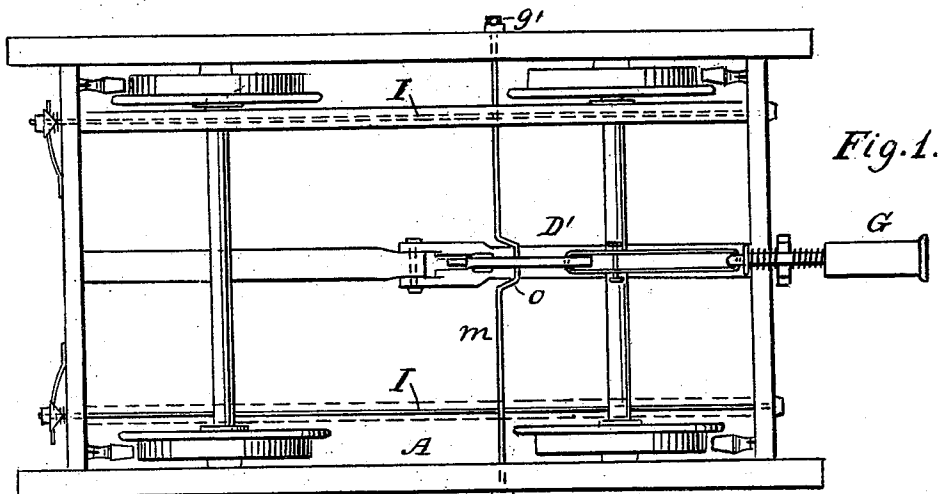


Fig. 1.

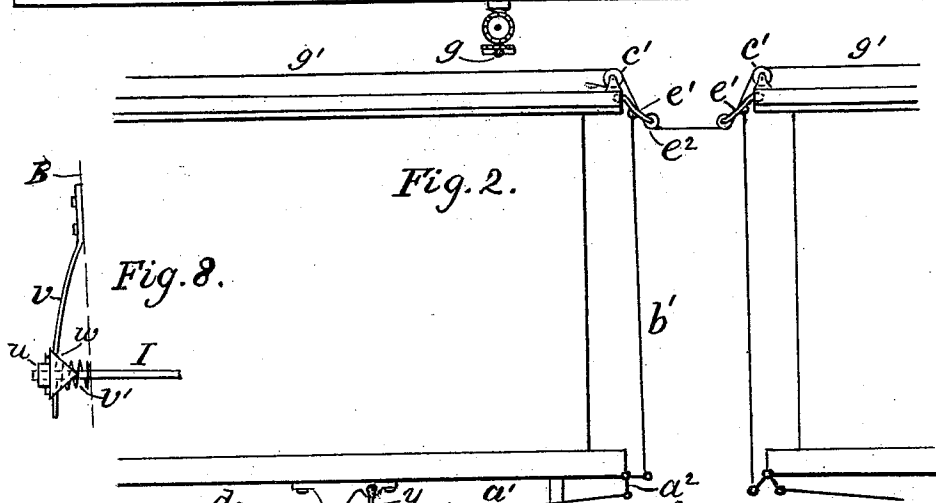


Fig. 2.

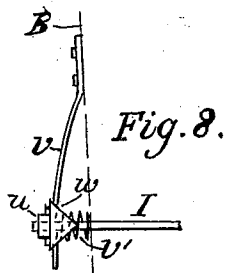


Fig. 8.

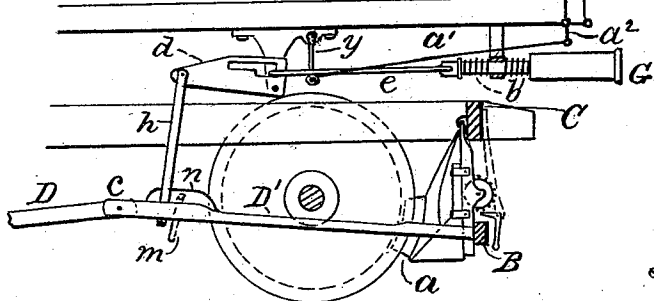
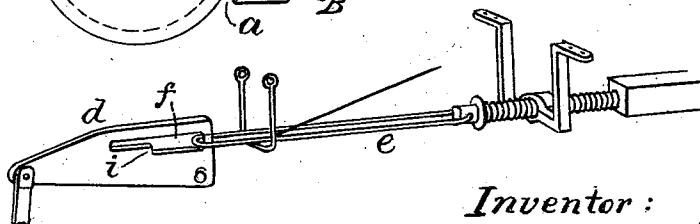


Fig. 3.



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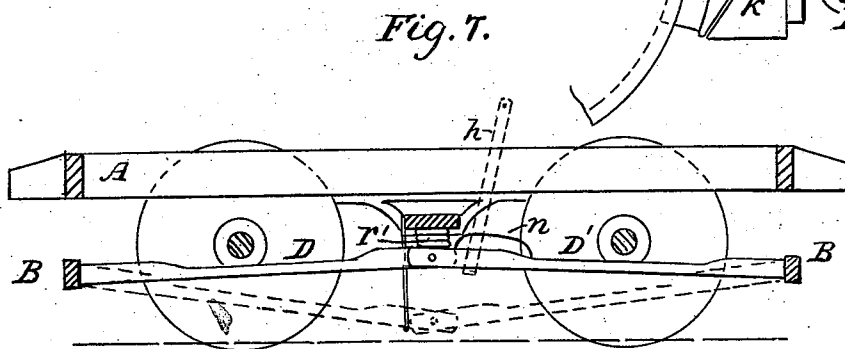
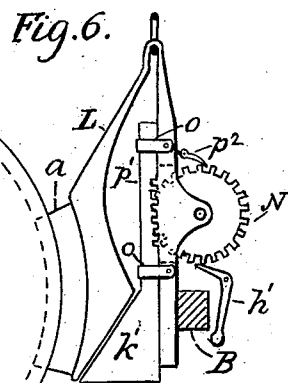
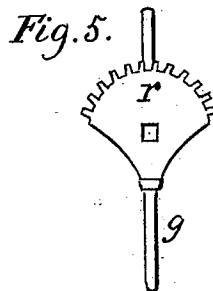
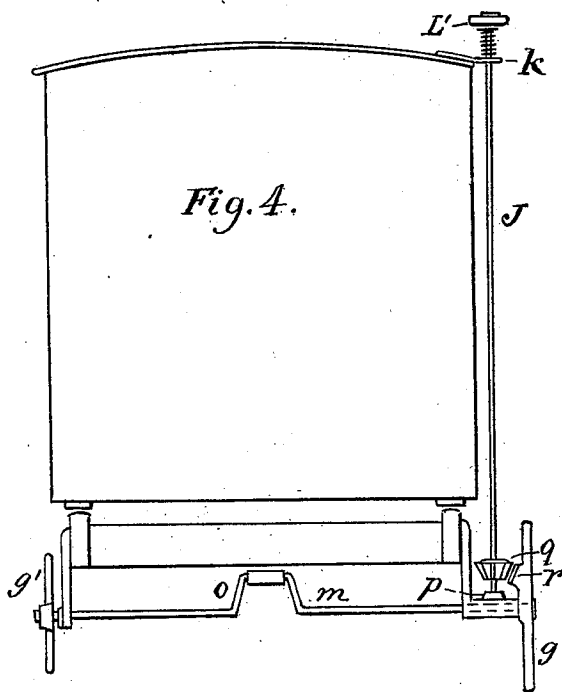
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UNITED STATES PATENT OFFICE.

ADDISON BARKER, OF CAMANCHE, IOWA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 543,716, dated July 30, 1895.

Application filed May 22, 1894. Serial No. 512,107. (No model.)

To all whom it may concern:

Be it known that I, ADDISON BARKER, a citizen of the United States, residing at Camanche, in the county of Clinton and State of Iowa, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to brakes for railway-cars; and it consists in certain improvements in brake mechanism, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a plan view of a car-truck, partly illustrating my invention, certain parts being removed. Fig. 2 illustrates the invention in sectional side view. Fig. 3 is a perspective view of a spring draw-bar and other details. Fig. 4 is a rear view of a car-body with a crank-rod, a vertical rod, and connecting gearing to actuate said crank-rod. Fig. 5 is a face view of a segmental gear connected with said crank-rod. Fig. 6 is a side view of a compensating device. Fig. 7 is a sectional side view of toggle-arms and other details connected with the brake-bars. Fig. 8 illustrates the spring-rods connected with brake-bars.

A designates the frame of a car-truck, and B indicates the brake-beams, which are hung to end-beams C and carry the shoes a.

D and D' indicate toggle-arms located under the longitudinal center line of the truck, the outer ends of said arms being connected with the brake-beams and the inner ends being pivotally connected, as seen at c.

G indicates a draw-bar, which is loosely mounted in the usual position and has an end-wise movement, being provided with a stem on which springs b are placed, which serve to return the draw-bar to position after being drawn outward or pressed inward.

A plate d, somewhat triangular in form, is pivoted at one end to the bottom of the car-body or to lugs connected therewith, and is connected by a link e with the stem of the draw-bar G, the connection of said link with the plate being in a slot f in the upper part of said plate, which slot is formed with a shoulder i, for the purpose hereinafter set forth. To the opposite end of the plate d is

attached a connecting-rod h, the lower end of which is connected with the toggle-arm D', so that the toggle-arms may be raised by a movement of said plate on its pivot.

A crank-shaft m extends across the truck-frame and is mounted in bearings carried by said frame, the crank o being midway of said shaft and having a loose connection with the toggle-arm D' by staples or curved rods n, which are secured to said toggle-arm D'. The crank-shaft m is provided at its extremities with handles g g' to be used by a person standing at either side of the car to raise or lower the toggle-arms. The crank-shaft may also be turned for such purpose by a person on top of the car by means of a vertical shaft or rod J, the lower end of which is in a socket p, formed on a bearing of the crank-shaft. The upper part of shaft J has a bearing k, which is secured to the car-body and consists of a thin plate, which allows a swaying movement of said shaft J.

On the shaft J at its lower end is a beveled pinion q in position to connect with a segmental gear r, which is fast on one end of the crank-shaft m, and on the upper end of shaft J is a hand-wheel L'. A spring s on the shaft J serves to raise said shaft slightly, so that the pinion q is not normally in connection with the gear r; but a person on the car by handling the wheel L and pressing the shaft J downward can put said pinion in connection with the segmental gear and turn the crank-shaft.

Near their extremities the brake-beams B are connected by two long rods I, each of which has one end extended through the brake beam, which is loose on the rod, the latter having a nut u on its extremity. Between the brake-beam and the nut u is placed a spring v, and a spiral spring v' on the rod may also be employed, the springs on the two rods serving to draw the rods, and thus press the brakes to the wheels of the car.

A washer w may be interposed between the spring v and the nut u, said washer having slits made in it, so that portions of the washer may be bent outward at the sides of the nut and other portions may be bent in the opposite direction to close over the edges of the spring v, and thus lock the nut and prevent it turning and getting loose on the rod.

When the train is moving forward, the draw-bar G, drawing on the pivoted plate *d*, through said plate and the connecting-rod *h*, raises the toggle-arms and presses the brakes from the wheels, and when the said arms are raised, so that their pivotal connection is a little higher than their outer extremities, they are retained in such position by the springs on the rods I. When the engine stops and the cars crowd against one another, the draw-bar being pressed inward gives the plate *d* a contrary movement on its pivot, pressing downward the connecting-rod *h*, which presses down the toggles to their depressed position, when the brakes are immediately closed by the springs connected with the rods I.

Before backing a train the draw-bar G may be thrown out of gear with the pivoted plate *d*, so that the toggle-arms will not be moved by the backward movement of said draw-bar by the following means: Near the plate *d* is hung to the bottom of the car a bail *y*, through which the link *e* extends to connect with said plate by the slot *f*, in which is formed a shoulder *i*. Ordinarily, when the draw-bar is pressed backward it pushes the link *e* directly against the said shoulder and thus actuates the pivoted plate *d*; but by raising the rearward end of the link the latter moves over and beyond said shoulder and does not affect the position of the plate *d* or of the connecting-rod *h* and the toggle-arms remain in position, holding the brake-beams from the wheels. To effect this out-of-gear movement of the link *e*, a rod *a'* is connected at one end with the bail *y*, the opposite end of said rod being connected with a triangular plate or bell-crank *a''*, which is pivotally connected with the car-body. A rod *b'* is connected with said bell-crank, and, extending upward, is connected with a lever *e'*, which has a hinge connection with the car at the top and carries a pulley *e''*, which is mounted in the free end of said lever.

Each car of a train may be provided with levers *e'*, one being at each end of the roof, and with pulleys *e''*, one of which is mounted on top of the car at each end, and a cord *g'* may be passed along on the tops of the cars, over pulleys *e'* and under pulleys *e''*, carried by the levers *e'*, so that by drawing the cord *g'* the links *e* will be raised by the action of the bell-cranks and bails *y* and will not engage the pivoted plates *d*. By means of the cord *g'* the brakes of a single car in a train may be kept open by a person on top of the car handling the cord.

The brake-shoes *a* are provided with compensating devices for the usual wear of said shoes. Each of these devices consists of a spring-frame L, the rear part of which is secured to the brake-beam, the brake-shoe being secured to the front part. The two parts of the frame L are connected at the top, from which said frame is hung to an end beam of the truck, and are separated at the lower end of said frame. Between the two

parts of the frame L is inserted a wedge *h'*, which bears against an oblique surface on the forward part of said frame, and a rack-bar *p'* extends upward from said wedge and is loosely connected with the rear vertical part of the frame by loops *o*. The parts are so constructed that the wedge may be moved upward, the effect of which movement is to expand the frame L and press the brake-shoe toward the car-wheel and thus compensate for any wear of said shoe. In an opening in the rear part of the frame L is mounted a gear-wheel N, in position to engage with the rack *p'*, and a weighted pawl *h'* is pivoted to an arm of the truck-frame (see Fig. 2) in position to connect with the wheel N. The said pawl at first bears upward against a tooth of the gear-wheel N, as seen in Fig. 6, and as the shoes of the brake-beam become worn the said beam is brought nearer to the car-wheels by the action of the springs on the extremities of rods I, so that the pawl *h'* moves in behind the tooth against which it rested. Then when the brake-beam is pressed from the wheels by the action of the toggle-arms the pawl *h'*, pressing inward against the tooth, causes the wheel N to turn one notch in the direction of the arrow *x*, and thus raises the wedge *h'*, expanding the frame L, and pressing the shoes toward the car-wheels, a compensation for the wear of the shoes being thus effected.

A pawl *p''*, connected with the frame L, serves to prevent backward turning of the wheel N.

The frames L, being expanded by the wedges, press the shoes, as they become worn, toward the car-wheels, compensating for the wear, and also serve to keep the brake-beams in their proper position from the wheels; otherwise, the brake-beams would be brought nearer to the car-wheels as the shoes become worn, and the toggle-arms might become so crowded inward that in their downward motion they would strike the ground.

An elastic cushion or spring *r'* is secured in position above the pivotal coupling of the toggle-arms and serves to prevent jarring when said arms are raised.

I claim—

1. In a car-brake, the combination with brake-beams provided with brake shoes, of toggle arms, connected at their outer ends with said brake beams, and adapted to press said beams outward, parallel rods connected with said brake-beams, springs on said rods, adapted to close the brakes, a movable draw-bar, a pivoted plate connected at one end with said drawbar, a rod loosely connected with the opposite end of said pivoted plate, said rod being also connected with said toggle arms, so that the latter may be raised or depressed by said rod, substantially as and for the purposes described.

2. In a car-brake, the combination with the toggle arms, having staples or curved rods secured thereto, of a crank-shaft in position to

engage said toggle arms by connection with said curved rods, substantially as set forth and described.

3. The combination, with the toggle arms
5 and curved rods secured thereto, of a crank-shaft, adapted to engage said toggle arms, a vertical shaft, mounted in a bearing carried by the car truck and having a bearing connected with the car-body, gearing, connecting
10 said vertical shaft with said crank-shaft, and a spring, tending to raise said vertical shaft from connection with said crank-shaft, substantially as set forth and described.

4. The combination, with a drawbar having
15 an endwise movement, of a pivoted plate, provided with a slot, a link connected with said drawbar and with said pivoted plate, by said slot, the said plate having a shoulder formed in said slot for contact with said link,
20 on the rearward movement of the drawbar, and mechanism for lifting said link, so as not to engage said plate by contact with said shoulder, substantially as set forth and described.

25 5. The combination with the brake beams,

of two rods connected therewith at their extremities, each of said rods being extended through one of said brake beams and provided with a nut, a spring between said nut and the brake beam, and a washer, between
30 said nut and said spring, adapted to lock said nut and prevent it turning on said rod, substantially as set forth and described.

6. The combination, with the brake beams,
35 of brake shoes, each of which is provided with a bifurcated spring frame, a wedge provided with a rack-bar, said wedge being adapted to press forward the shoe, a gear wheel carried by said frame, in position to connect with said
40 rack bar and raise said wedge, and a weighted pawl in position to connect with said gear wheel, substantially as and for the purposes described.

In testimony whereof I have affixed my signature in presence of two witnesses.

ADDISON BARKER.

Witnesses:

EDWIN G. CADY,
A. A. WAGNER.