

(No Model.)

J. E. LOUGHRIDGE, Dec'd.

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COMPENSATING DEVICE FOR RAILWAY CAR BRAKES.

No. 575,255.

Patented Jan. 12, 1897.

FIG. 1.

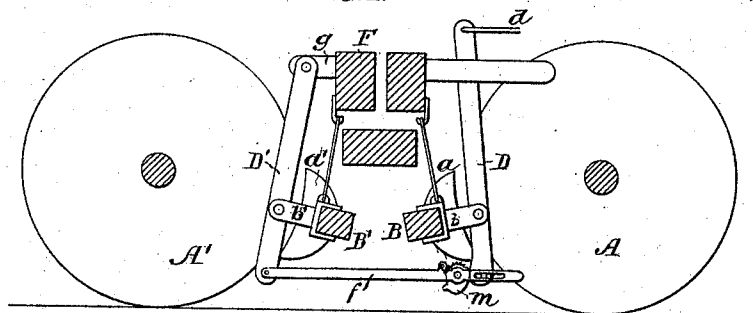


FIG. 2.

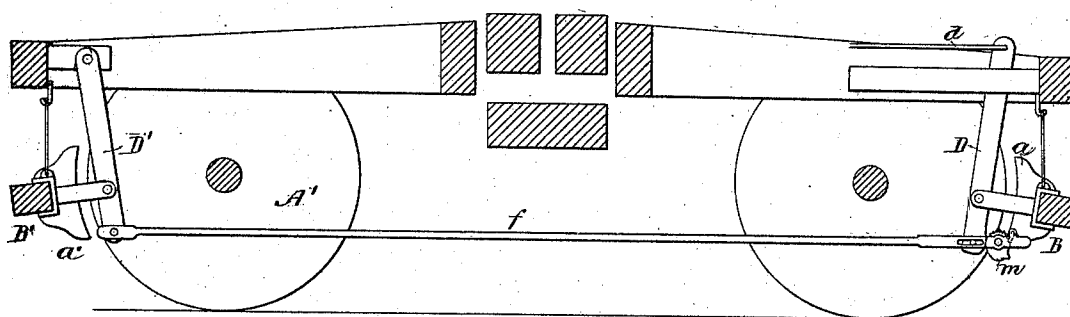


FIG. 3.

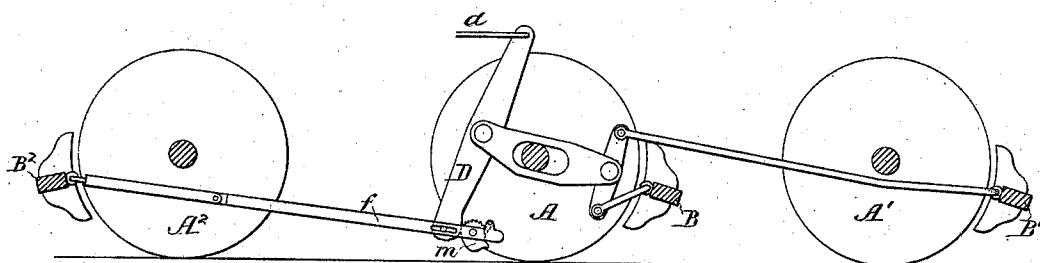


FIG. 4.

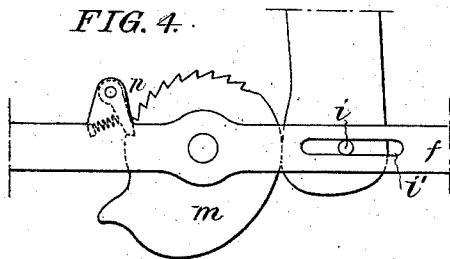
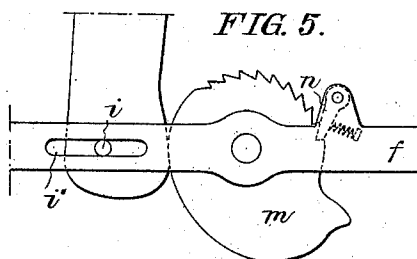


FIG. 5.



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COMPENSATING DEVICE FOR RAILWAY-CAR BRAKES.

SPECIFICATION forming part of Letters Patent No. 575,255, dated January 12, 1897.

Application filed October 5, 1894. Serial No. 525,036. (No model.)

To all whom it may concern:

Be it known that I, JACOB E. LOUGHRIDGE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Compensating Devices for Railway-Car Brakes, of which the following is a specification.

My invention relates to that class of car-braking mechanism having as elements a live-lever and a rod connecting the same to a dead-lever or other part of the braking mechanism; and the object of my invention is to compensate for wear of the brake-shoes or looseness or slack in parts of the brake-gear, an object which I attain by the use of means hereinafter described, whereby I am enabled to automatically change the effective length of such connecting-rod, practically shortening the rod in some classes of brake-gear or lengthening it in others.

In the accompanying drawings, Figure 1 is a sectional view illustrating my invention in connection with the essential parts of a well-known form of brake-gear having inside shoes applied to both wheels of a four-wheeled truck. Fig. 2 is a similar view illustrating my invention in connection with the essential parts of that type of brake-gear in which brake-shoes are applied to the outsides of the wheels of a four-wheeled truck. Fig. 3 is a view illustrating my invention in connection with the essential parts of an ordinary form of braking mechanism for six-wheeled trucks. Fig. 4 is an enlarged view of part of the mechanism shown in Fig. 1, and Fig. 5 is an enlarged view of part of the mechanism shown in Fig. 2.

In Fig. 1, A A' represent the wheels at one side of a truck and B B' the two brake-beams suspended from the truck, as usual, and carrying the brake-shoes *a a'*, respectively, the shoe *a* acting on the wheel A and the shoe *a'* acting on the wheel A'. Hung to a bracket *b* on the brake-beam B is what is known as the "live-lever" D of the brake-gear, the long arm of this lever being connected by a rod *d* to the brake-operating device, which may be either a hand-brake or a power-brake. A rod *f* extends from the short arm of the lever D to the short arm of a lever D', which

is known as the "dead-lever" and is hung to a bracket *b'* on the beam B', the upper end of said dead-lever being hung to an arm or bracket *g*, secured to and projecting from the bolster F. Usually this arm or bracket has a series of openings for the reception of the fulcrum-pin of the dead-lever, and slack is taken up by shifting the pin from one set of openings to another, so as to advance the fulcrum of the dead-lever by successive adjustments. In order to provide for automatic adjustment without the necessity of thus shifting the fulcrum end of the dead-lever, I provide for changing the effective length of the rod *f*, the change in this case being a practical lengthening of the rod and such change being effected in the following manner:

The short arm of the lever D is not secured to the rod *f*, as usual, but has a pin *i*, free to move in a slot *i'* in said rod, and said short arm of the lever has a rounded or cam-shaped face, which bears against the periphery of a disk *m*, eccentrically pivoted to the rod *f*, a concentric portion of the periphery of said disk being toothed and engaged by a spring-pawl *n*. When, therefore, the lever D is moved in the direction of the arrow, there will be a movement of its rounded or cam-shaped end in contact with the periphery of the eccentric disk *m*, and the latter will, if the slack of the brake-gear is sufficient to permit it, be turned to the extent of one or more of its teeth, and such movement will be held by engagement of the spring-pawl with said teeth, so that the short arm of the lever D will be forced away from the short arm of the lever D' to a certain extent, thus, in effect, adding to the length of the rod *f* and moving the shoes *a a'* toward the wheels. As long as there is sufficient slack to permit a movement of the disk *m* to the extent of a tooth this separation of the short arms of the levers D D' will continue. Hence the shoes will eventually be brought up to the proper predetermined distance from the wheels, so that the application of the shoes can be effected by a minimum movement of the upper end of the live-lever D, it being understood that the latter always falls or is drawn back to a certain position after each operation, so as to permit

of the release of the shoes from contact with the wheels.

In that class of trucks (shown in Fig. 2) in which the shoes are applied to the outside of the wheels it is necessary to shorten the effective length of the rod f in taking up the slack. Hence the relation of the eccentric disk m in respect to the lever D is the reverse of that shown in Fig. 1, that is to say, the eccentric is outside of the lever D instead of being between the same and the lever D' , so that the movement of the eccentric tends to force the short arm of the lever D toward the short arm of the lever D' instead of separating them.

In the six-wheeled truck shown in Fig. 3 the same arrangement of eccentric in respect to the rod f is adopted, the shortening of said rod in this case also being necessary in taking up the slack, but the rod f in said six-wheeled truck does not connect with a dead-lever, as in the four-wheeled truck shown in Figs. 1 and 2, but connects directly with the brake-beam B^2 .

Irrespective of its compensating function, the eccentric disk m , in connection with the rounded or cam-shaped end of the lever D , constitutes the means of materially increasing the power of the brake, the disk and lever having an action somewhat similar to that of a knee or toggle joint. While, therefore, the use of the disk is preferred in all cases, still it is not absolutely necessary to the proper carrying out of my invention, for instead of the rotating wedge represented by the eccentric disk I may use a sliding wedge acting in the same manner and combined with means for retaining it in its successive positions of advancement. It is also advisable to employ springs or other resilient means for retracting the brake-beams when pressure is removed from the lever D in order that the lever and the compensating disk or wedge may be maintained in close contact at all times, although in some cases the usual method of hanging the brake-beams so that they will fall by grav-

ity sufficiently to free the shoes from the contact with the wheels may be relied upon to insure the contact of the lever D and the compensating device.

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

1. The combination in car-brake mechanism, of a lever, a rod connecting said lever to another element of said brake mechanism, a movable cam carried by said rod and acted upon by the lever so as to be advanced thereby, and means for retaining said cam in its successive positions of advancement, whereby the effective length of the connecting-rod may be automatically changed in order to take up slack, substantially as specified.

2. The combination in car-brake mechanism, of a brake-operating lever, a rod connecting said lever to one of the other elements of the brake mechanism, an eccentric disk hung to said rod and adapted to be turned by contact with the brake-operating lever, and means for retaining said disk in its successive positions of advancement, whereby the effective length of the connecting-rod is automatically changed in order to take up slack, substantially as specified.

3. The combination in car-brake mechanism, of the live and dead levers, a rod connecting the two, a movable cam carried by said rod and acted upon by the live-lever so as to be advanced thereby, and means for retaining said lever in its successive positions of advancement, so as to automatically change the effective length of the connecting-rod in taking up slack, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB E. LOUGHRIDGE.

Witnesses:

FRANK E. BECHTOLD,
JOSEPH H. KLEIN.