

(No Model.)

J. E. LOUGHRIDGE.
CAR BRAKE MECHANISM.

No. 484,597.

Patented Oct. 18, 1892.

FIG. 1.

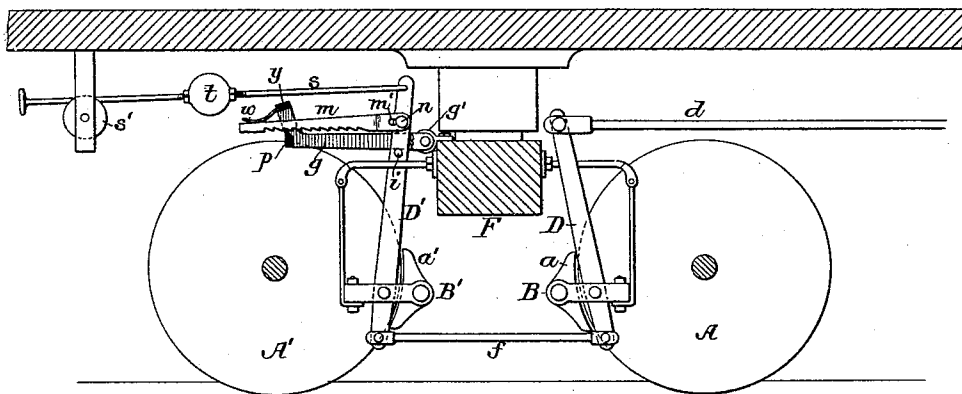


FIG. 2.

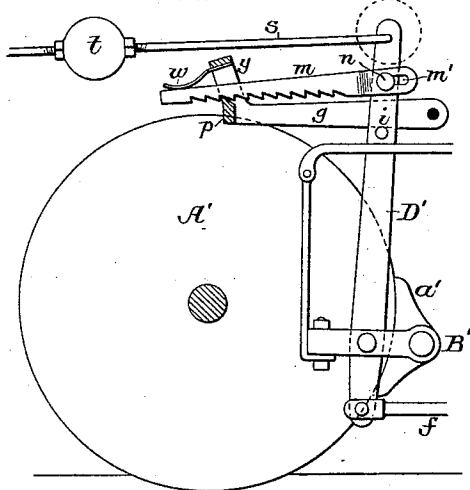


FIG. 3.

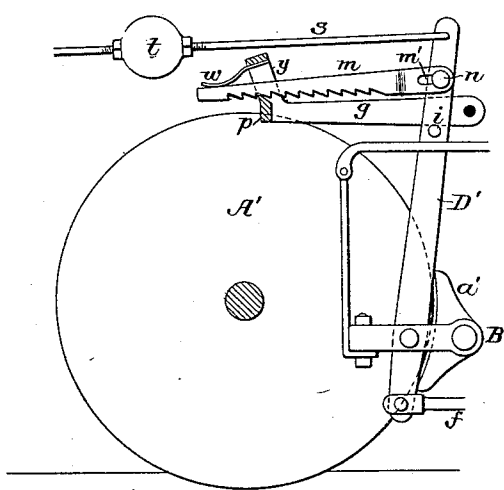


FIG. 4.

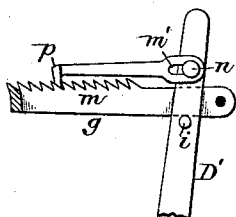
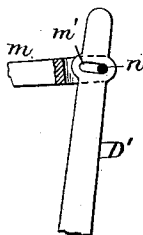


FIG. 5.



Witnesses:

Hamilton D. Turner
R. Schleicher.

Inventor:

Jacob E. Loughridge
by his Attorneys

Hewson & Hewson

UNITED STATES PATENT OFFICE.

JACOB E. LOUGHRIDGE, OF PHILADELPHIA, PENNSYLVANIA.

CAR-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 484,597, dated October 18, 1892.

Application filed February 2, 1892. Serial No. 420,058. (No model.)

To all whom it may concern:

Be it known that I, JACOB E. LOUGHRIDGE, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Car-Brake Mechanism, of which the following is a specification.

My invention consists in so combining a rack-and-pawl take-up with the "dead-lever" of railway-car-brake mechanism that, while said dead-lever will retain the successive positions of advancement which it assumes on account of wear of the brake-shoes or slack in any part of the braking mechanism, locking of the shoes in contact with the wheels will be effectually prevented.

The invention also comprises means for facilitating hand adjustment and means for aiding the movement of the dead-lever in taking up slack and for preventing such a sudden reversing of the moving element of the take-up device as would preclude the engagement of the rack and pawl and the holding of the additional advance movement, supposing said movement to be to the extent of one or more teeth of the rack.

In the accompanying drawings, Figure 1 is a view partly in section and partly in elevation, illustrating the application of my improved device for taking up slack as applied to a known form of brake-gear. Figs. 2 and 3 are diagrams on a larger scale, illustrating the operation of the device; and Figs. 4 and 5 are detached views illustrating modifications of the invention.

A A' represent the two wheels at one side of the car-truck, and B B' the two brake-beams suspended from arms on one of the bolsters of the truck 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 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, either hand or power, and the short arm of the lever being connected by a rod *f* to the short arm of the lever D', known as the "dead-lever", which is hung to the brake-beam B', the upper end of this dead-lever being guided in a slotted

arm *g*, which is hung to a bracket *g'* on the bolster F of the truck and rests upon a pin *i*, projecting from the dead-lever, as shown. The upper end of the dead-lever is usually retained longitudinally in the guide *g* by means of a pivot-pin constituting the fulcrum of the lever, and as the shoes or other portions of the brake-gear wear or as the parts of the gears slacken by reason of the stretch or spring of any of them the pin must be shifted, so as to advance the upper or fulcrum end of the dead-lever in the guide, in order to compensate for such wear or slackening.

I have heretofore devised several means for effecting automatic compensation for wear of the brake-shoes or slack in the brake-gear. For instance, in my patent, No. 433,294, dated July 29, 1890, I have described an automatic compensating bearing or fulcrum for the upper end of the dead-lever, said bearing being in the form of a wedge having a constant tendency to follow and hold any advance in the position of the fulcrum end of the dead-lever, such as would be caused by the jarring movement of the car and permitted by wear of the shoes or slack in any part of the brake-operating gear, and in an application for patent filed by me on the 21st day of May, 1891, Serial No. 393,597, I have described another form of compensating device consisting of a rack hung to the upper end of the dead-lever and engaging with a pawl-tooth on the guide *g*, the teeth of the rack being undercut, so that after the rack had advanced to such an extent that one of its teeth was clear of the pawl the falling of said tooth into engagement with the pawl would permit such a back movement of the dead-lever as would be sufficient to carry the brake-shoes clear of the wheels, and thus prevent accidental locking of the wheels by the brakes. In the present case, however, I hang to the dead-lever a rack *m*, which has a longitudinal slot *m'* for the reception of a pivot-pin *n*, and the teeth of this rack are not undercut, but so engage with a pawl-tooth *p* at the end of the guide *g* that no back movement of the rack is possible when one of its teeth drops into engagement with the pawl, the slot *m'*, however, permitting such play of the dead-lever inde-

pendently of the rack as will insure the carrying of the brake-shoes free from contact with the wheels after each advance movement of the lever.

5 To provide for taking up slack by hand, I hang to the upper end of the dead-lever a rod *s*, which is supported upon a roller *s'*, hung in a bracket depending from the car sill or framing, this rod terminating at a point convenient to the end of the car, so that it can be readily manipulated and will afford provision for taking up the slack in the brake-gear by an outward pull upon the rod whenever the brake-hose is being coupled, the
15 brake-shoes, however, owing to the slot *m'*, always falling clear of the wheels when the rod is released. (See Figs. 2 and 3.)

Mounted upon the rod *s* is a weight *t*, and after each forward movement of the dead-
20 lever the momentum of this weight must be overcome before there can be any reverse movement of the lever. Hence ample time is afforded for the rack *m* to engage with the pawl-tooth *p* after each successive forward
25 movement of said rack. A spring *w*, mounted upon a loop *y* at the end of the guide *g*, serves to press downward upon the outer portion of the rack *m*, and thereby causes it to engage with the pawl *p* and prevents it from being
30 jarred or shaken out of engagement therewith. The weighted rod *s* can also be employed with advantage in connection with a lever carrying an undercut rack, as set forth in my application before alluded to, or the
35 weighted rod may in that case form a continuation of the rack itself, if desired, or the weight may in some cases be applied directly to the upper end of the dead-lever, as shown by dotted lines in Fig. 2.

40 Besides performing the function above described the weighted rod serves to aid in the movement of the dead-lever necessary to take up slack, for whenever there is any bumping of the car or other arrest of its forward move-
45 ment the weighted rod tends to move forward along with the rest of the brake-gear, it being understood that the slack is generally taken up by that dead-lever which is at the foremost end of the car, because of said tendency
50 of the entire brake-gear to move forward when the movement of the car is arrested.

In carrying out my invention there may be various modifications in the construction and arrangement of parts without departing from
55 the main features of said invention. For instance, the pawl may be carried by the dead-lever and the rack formed on the guide *g*, as shown in Fig. 4, and the slot *m'* may be formed in the dead-lever, as shown in Fig. 5, instead
60 of in the rack or pawl, and the device may be applied to brakes in which the shoes engage with the outer runs of the wheels instead of with the inner runs of the same, as will be readily understood.

65 Having thus described my invention, I

claim and desire to secure by Letters Patent—

1. The combination of the dead-lever of railway-car-brake mechanism with a rack-and-pawl compensating device for retaining said
70 lever in its successive positions of advancement, one element of said device having a slotted connection with the lever, whereby movement of said lever to a limited extent independently of the compensating device is
75 permitted, substantially as specified.

2. The combination of the dead-lever of railway-car-brake mechanism, an operating-rod extending toward the end of the car and serving as a means of adjusting said lever to take
80 up slack, and a rack-and-pawl compensating device for retaining the lever in its successive positions of advancement, one of the elements of said device being hung to the lever, substantially as specified. 85

3. The combination of the dead-lever of railway-car-brake mechanism, a rack-and-pawl compensating device for retaining said dead-lever in its successive positions of advancement, one element of said device being hung
90 to the dead-lever, and a momentum-weight serving to aid the take-up movements of the lever and to prevent rapid reversing of the same, substantially as specified.

4. The combination of the dead-lever of railway-car-brake mechanism, an operating-rod extending toward the end of the car and serving as a means of adjusting said lever to take
up slack, a weight mounted upon said rod, and a rack-and-pawl compensating device for
100 retaining the lever in its successive positions of advancement, one of the elements of said device being hung to the lever, substantially as specified.

5. The combination of the dead-lever of railway-car-brake mechanism, a rack-and-pawl compensating device for retaining said dead-lever in its successive positions of advancement, one element of said device being hung
110 to the dead-lever by a slotted connection, and an operating-rod connected to the dead-lever independently of said element of the compensating device, substantially as specified.

6. The combination of the dead-lever of railway-car-brake mechanism, a rack-and-pawl
115 compensating device for retaining said dead-lever in its successive positions of advancement, one of the elements of said device being hung to the dead-lever by a slotted connection, and an operating-rod connected to the
120 dead-lever independently of said element of the compensating device, said rod having a weight mounted upon it, substantially as specified.

7. The combination of the dead-lever of railway-car-brake mechanism, a rack hung to the
125 free end of said dead-lever, and a guide for said lever, said guide having at its outer end a pawl-tooth for engaging with the teeth of the rack, substantially as specified. 130

8. The combination of the dead-lever of rail-
way-car-brake mechanism, a rack hung to the
lever, and a guide for said lever having at the
outer end a pawl-tooth for engaging with the
5 teeth of the rack, and a yoke carrying a spring
which presses upon the rack and holds it in
engagement with the pawl-tooth, substan-
tially as specified.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

JACOB E. LOUGHRIDGE.

Witnesses:

EUGENE ELTERICH,
HARRY SMITH.