

(No Model.)

2 Sheets—Sheet 1.

W. H. MARSHALL.
SLACK ADJUSTER FOR CAR BRAKES.

No. 484,860.

Patented Oct. 25, 1892.

Fig. 1.

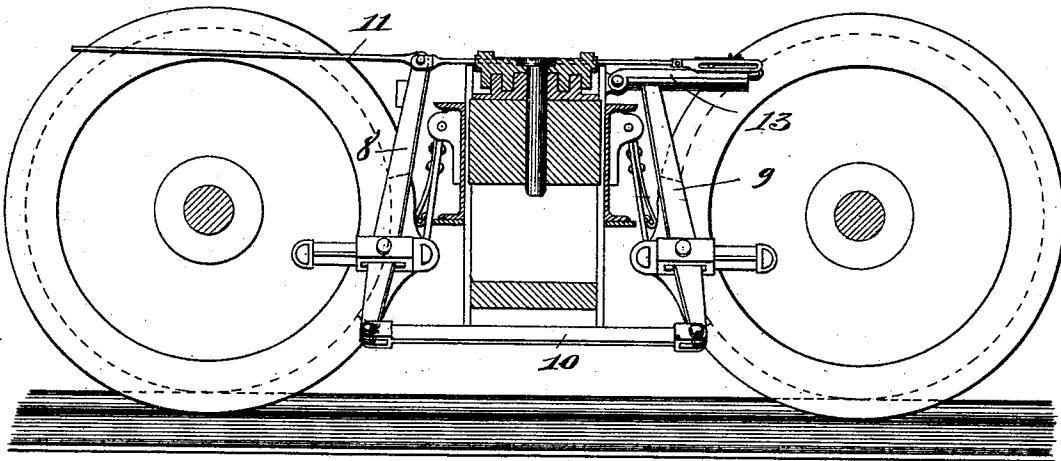
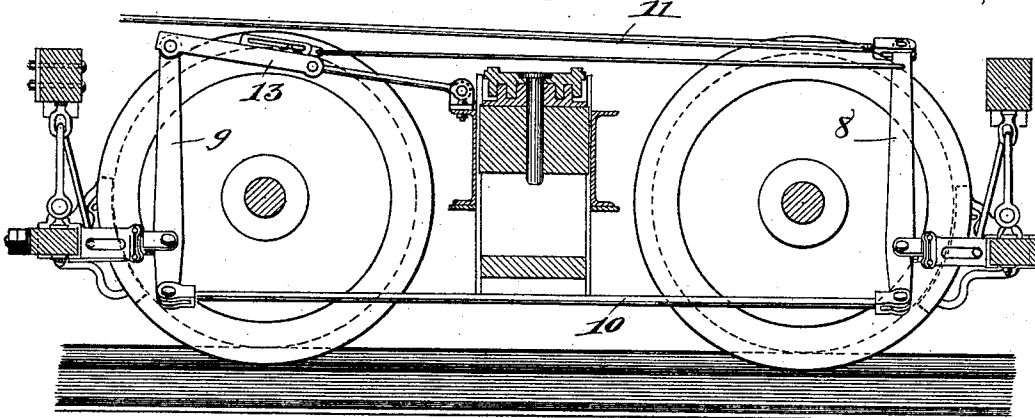


Fig. 2.



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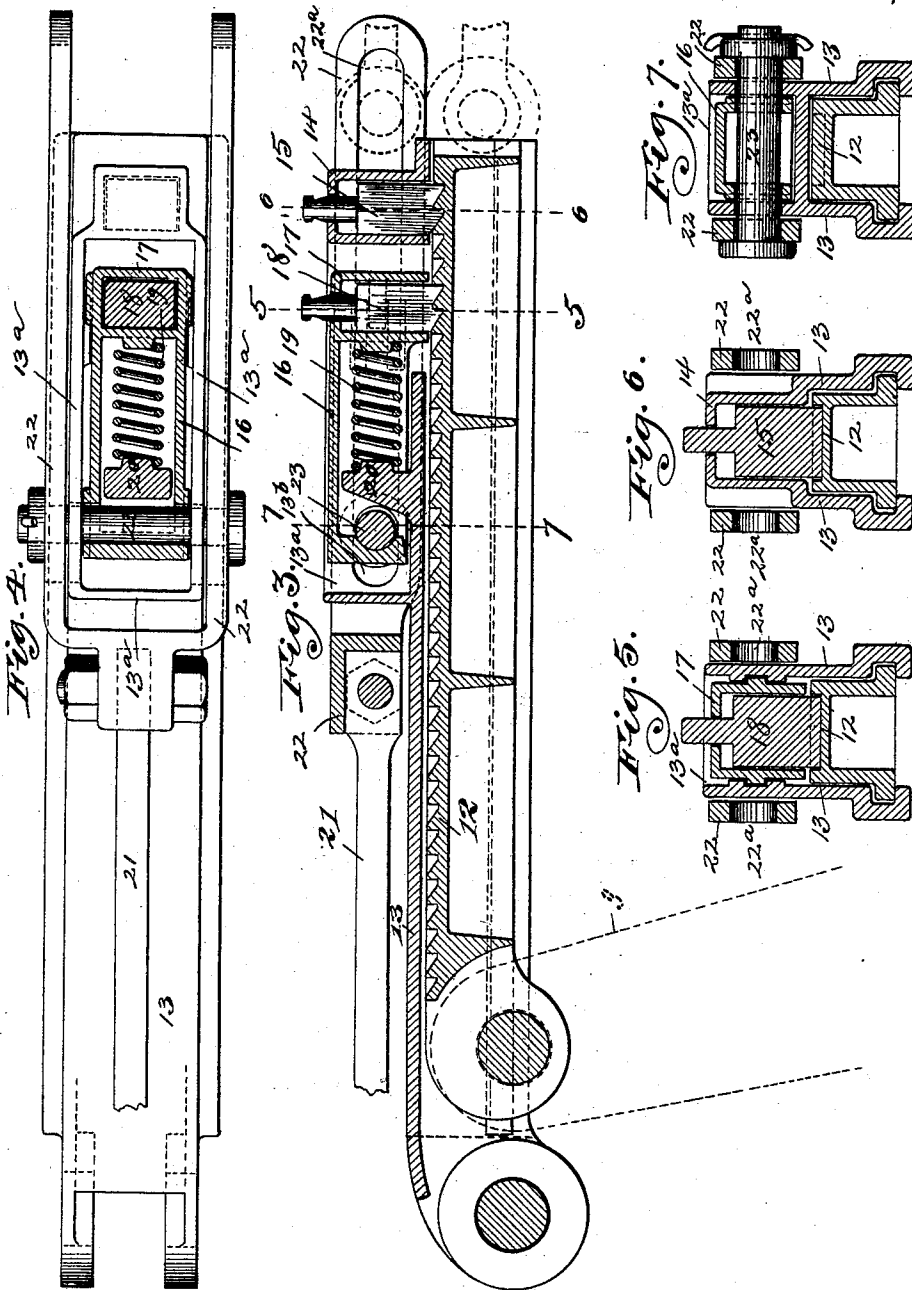
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UNITED STATES PATENT OFFICE.

WALDO H. MARSHALL, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CONSOLIDATED BRAKE-ADJUSTER COMPANY, OF SAME PLACE.

SLACK-ADJUSTER FOR CAR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 484,860, dated October 25, 1892.

Application filed November 16, 1891. Serial No. 412,068. (No model.)

To all whom it may concern:

Be it known that I, WALDO H. MARSHALL, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Slack-Adjusters for Car-Brakes, of which the following is a specification.

My invention relates to the provision of a simple device for automatically taking up the slack in car-brakes to compensate for the wear of the brake-shoes and gearing; and it consists in connecting the upper end of the live-lever of the truck to a rod actuating a ratchet mechanism applied to the upper end of the dead-lever, while the lower ends of said levers are connected by the usual brake-rod of unvarying length.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a car-truck having inside brakes. Fig. 2 is a similar view of a truck having outside brakes. Fig. 3 is a longitudinal section through the ratchet mechanism attached to the upper end of the dead-lever and showing its connection to the live-lever. Fig. 4 is a plan view of the same, partly in section; and Figs. 5, 6, and 7 are cross-sections on the lines marked with corresponding numerals in Fig. 3.

In the drawings, 8 represents the live-lever and 9 the dead-lever, which are connected at their lower ends by the lower brake-rod 10 of unvariable length.

11 is the upper brake-rod, pivotally connected to the upper end of the live-lever 8. To the upper end of the dead-lever is secured a rack 12, which has a sliding bearing within the box 13, one end of which is secured to the truck-frame. This box 13 has formed thereon a case 14 to contain a gravity-pawl 15. Within a recess formed on top of box 13 by walls 13^a slides a box-like casting 16, provided with a case 17 to contain a second gravity-pawl 18. A spring 19, with open coils, has one end seated against the case 17 and its other end has a bearing upon the lug 20, integral with the box 13 and projecting up within the recess thereof.

21 is a rod, one end of which is pivoted to the upper end of the live-lever 8 and the other end of which is secured to a yoke 22, which embraces the walls 13^a. Said walls are slot-

ted, as seen at 13^b, and a pin 23 is projected through said slots and passes through holes in the side walls of the casting 16. Said casting may thus be permitted a slight endwise movement, during which, of course, spring 19 will be compressed, the movement being sufficient to permit the gravity-pawl 18 to move up and engage a new tooth of the rack 12. The pin 23 has its ends projected through long slots 22^a in the yoke 22, these slots being of such length as to permit a movement of said rods 21 equal in length to the movement of the upper end of the live-lever when the brakes are applied.

In operation, supposing the parts to be in the position shown in Fig. 1, in which the inside brake is represented, in the application of the brake the upper end of the live-lever 8 will be drawn forward and the rod 21 will be carried with it. In case the brake-shoes are not unduly worn, the bifurcations of the yoke 22 will slide forward over the pin 23 without actuating the ratchet mechanism; but when undue wear has taken place the travel of the rod 21 will be greater than the length of the slot 22^a, in which case the closed ends of the bifurcations will engage the pin 23 and move it forward in its slot 13^b, carrying with it the casting 16, compressing the spring 19, and causing the gravity-pawl 18 to ride up and engage a new tooth. When the brakes are released, the rod 21 returns to its normal position, thus permitting the spring to thrust the casting 16 back to its normal position and sliding the rack 12 out until the gravity-pawl 15 engages a new tooth, and thus locks the rack in its adjusted position. This movement of the rack, of course, affects the position of the upper end of the dead-lever, moving it back to a distance corresponding to the length of the tooth, thus accomplishing automatically that adjustment of the upper end of the dead-lever which has heretofore been done by hand.

Without limiting myself to the precise details of construction and arrangement of parts, I claim—

1. In a slack-adjuster for brakes, the combination, with the live and dead levers thereof, said levers having a connection of unvarying length at their lower ends, of a box secured to the truck-frame and provided with

a pawl adapted to engage a rack secured to the dead-lever, a rack arranged to slide in said box and secured to the dead-lever, a second pawl arranged in said box and adapted to engage said rack, and means for actuating said second pawl from the live-lever, substantially as and for the purposes specified.

2. In a slack-adjuster for car-brakes, the combination, with the live and dead levers thereof pivotally connected to the brake-beams and having their lower ends connected at a fixed distance from each other, of a ratchet mechanism applied to the dead-lever and comprising a rack secured to said lever and two gravity-pawls adapted to engage the teeth of said rack, one of said pawls being movable along the rack, and a rod pivotally connected to the live-lever and adapted to move said pawl along the rack, whereby to automatically take up the slack, substantially as described.

3. In a slack-adjuster for car-brakes, the combination, with the live and dead levers thereof pivotally connected to the brake-beams and having their lower ends connected at a fixed distance from each other, of a ratchet mechanism applied to the dead-lever and comprising a rack secured to said lever, gravity-pawls adapted to engage the teeth of said rack, a sliding part, as 16, containing a case for said movable pawl, and a rod pivotally connected to the live-lever and having a sliding connection with said part 16 to permit a normal travel of the rod, and also a locking connection therewith whereby to move

said pawl and take up the slack when the travel is abnormal, substantially as described.

4. In a slack-adjuster for car-brakes, the combination, with the live and dead levers thereof pivotally connected to the brake-beams and having their lower ends connected at a fixed distance from each other, of a ratchet mechanism applied to the dead-lever and comprising a rack secured to said lever, gravity-pawls adapted to engage the teeth of said rack, a sliding part, as 16, containing a case for said movable pawl, and a rod pivotally connected to the live-lever and having a sliding connection with said part 16 to permit a normal travel of the rod, and also a locking connection therewith whereby to move said pawl and take up the slack when the travel is abnormal, and a spring bearing upon the sliding part, substantially as described.

5. In a slack-adjuster for brakes, the combination, with the live and dead levers thereof, said levers having a connection of unvarying length at their lower ends, of a box secured to the truck-frame and having a pawl adapted to engage a rack secured to the dead-lever, a rack arranged to slide in said box and secured to the dead-lever, a spring-supported pawl arranged in said box and adapted to engage the said rack, and means for moving the spring-supported pawl from the live-lever, substantially as and for the purposes specified.

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