No. 758,423. PATENTED APR. 26, 1904.

E. E. CROWELL.

SLACK ADJUSTER FOR CAR BRAKES.

APPLICATION FILED AUG. 20, 1903.

NO MODEL.

Fig. 1.

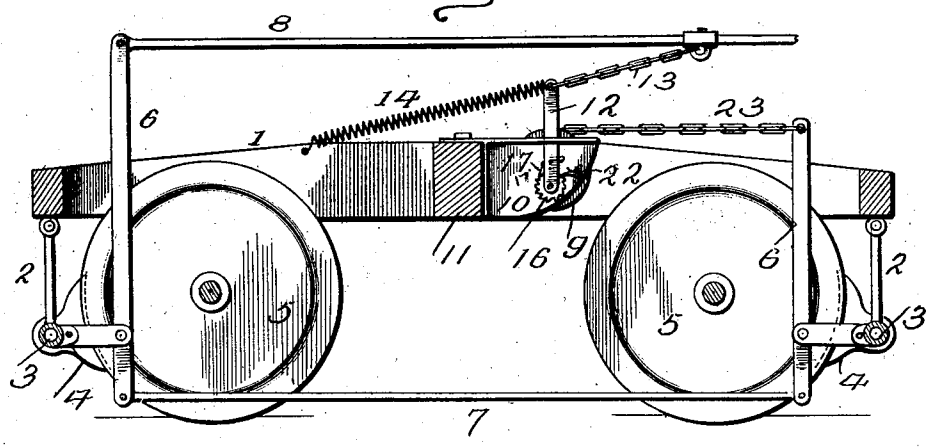


Fig. 2.

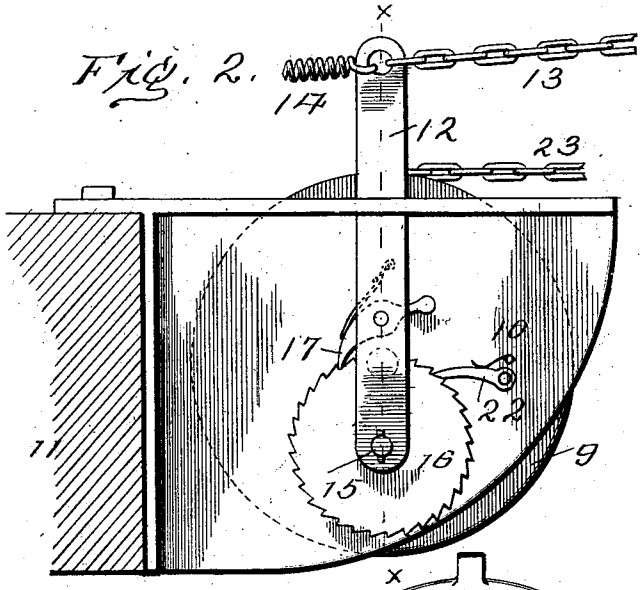


Fig. 3.

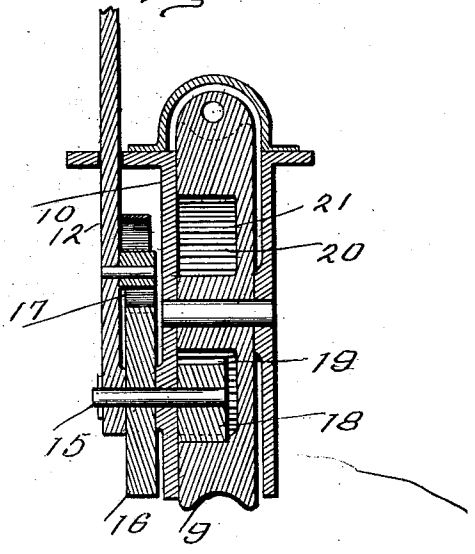
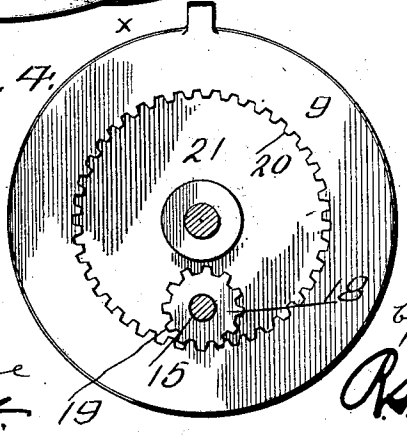


Fig. 4.



Witnesses

Inventor

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 758,423. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

EDWARD E. CROWELL, OF WATERVILLE, MAINE, ASSIGNOR OF ONE-HALF TO J. H. KELLEHER, OF PORTLAND, MAINE.

SLACK-ADJUSTER FOR CAR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 758,423, dated April 26, 1904.

Application filed August 20, 1903. Serial No. 170,198. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. CROWELL, a citizen of the United States, residing at Waterville, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Slack-Adjusters for Car-Brakes, of which the following is a specification.

This invention relates to that class of device commonly known as "automatic slack-adjusting means" ordinarily utilized in connection with car-brake systems.

The type of brake means to which this device is usually applied consists of the usual form of brake-beams depending from the end beams of the car-truck and pivotally supported by link connections therewith. These brake-beams carry the brake-shoes and are provided with brake-levers which are connected by suitable means to the brake-setting mechanism. Constant setting of the brakes causes wear upon the brake-shoes and consequent slack in the operating connections, and this invention aims to provide a novel construction of the mechanism for taking up this slack.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a car-truck, showing the brake-beams adjacent the operating-levers and the take-up mechanism. Fig. 2 is a side elevation showing the slack-adjusting means alone. Fig. 3 is a central vertical section upon the line X X of Fig. 2. Fig. 4 is an elevation showing the compensating pulley and the operating-pinion by which said pulley is caused to take up the slack.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The adjusting mechanism is shown applied to a car-truck, though it will be understood that it may be used upon any structure of brake mechanism involving the use of brake-beams and operating-levers for causing application of the brake-shoes carried by the said beam. The car-truck is designated 1, and from the end beams of the said truck depend the links 2, which pivotally support the brake-beams 3. The brake-beams are provided with shoes 4, which are to be applied to the wheels 5 upon actuation of the brake mechanism. Brake-levers 6 are pivoted to the brake-beams 3, being connected at their lower end by rod 7 to cause simultaneous application of the brake-shoes. An operating-bar 8 is connected to one of the brake-levers 6, and the brake-setting power is applied to this bar in applying the brakes. The opposite brake-lever is connected at its upper end to a compensating pulley 9, which pulley is mounted upon a bracket 10, which is projected, preferably, from the bolster 11, carried by the truck of the car. The compensating pulley 9 is operated by a take-up lever 12, which is also pivotally mounted upon the bracket 10 and which is connected at its upper end by a flexible connection 13 to the operating-bar 8. A spring 14, secured at one end to the take-up lever 12 and at the other to the bolster 11, serves to normally hold the lever 12 in an ascertained position. The take-up lever 12 is mounted upon the bracket by means of a pivotal fastening 15, which also carries a ratchet-wheel 16. The pawl 17 is pivoted to the lever 12, intermediate the ends of the latter, and this pawl coöperates with the teeth of the ratchet-wheel 16 to rotate the latter upon actuation of said lever. Keyed to the pivot or shaft 15, which is rotated by the ratchet-wheel 16, is a pinion 18, which is located upon the side of the bracket 10 opposite to that upon which the lever 12 and the ratchet-wheel 16 are disposed. The pinion 18 has its teeth 19 in meshing relation with the teeth 20, provided upon the pulley 9, and

an annular recess 21 is provided upon one side of the pulley 9, and this recess receives the pinion 18, the teeth 20 being located at the outermost portion of the annular recess 21, so that the pinion 18 is housed by the pulley 9 in a manner readily seen. A spring-actuated pawl 22 is disposed upon the bracket 10 and coöperates with the teeth of the ratchet-wheel 16 to prevent backward rotation thereof.

The operation of the operating-bar 8 in applying the brakes does not cause actuation of the take-up lever 12, the connection 13 being adjusted to permit a certain amount of movement of the operating-bar without causing any movement of the said lever 12 under normal condition of service. However, when the operating connections become slack, due to wear upon the brake-shoes, the operating-bar 8 will have an amount of lost motion proportionate with the slack in the connection aforementioned, and thus when the brakes are applied under such conditions the said operating-bar is given a greater length of movement, and this causes actuation of the take-up lever 12 through the medium of the connection 13, pulling the said lever against the tension of the spring 14. When the operating-bar 8 resumes its normal position, the tension-spring 14 causes the lever 12 to resume its normal position likewise, and this movement of the lever rotates the ratchet-wheel 16, which is engaged by the pawl 17, and the rotation of the ratchet-wheel rotates the pinion 18, and thereby actuates the pulley 9, which is connected to one of the brake-levers 6. The connection 23 is thus shortened, being wound upon the pulley, and the pulley is prevented from backward rotation by means of the pawl 22, which engages the ratchet-wheel 16.

Having thus described the invention, what is claimed as new is—

1. In slack-adjusting mechanism, the combination with brake-beams and brake-levers carried thereby, a take-up lever operable by the brake-setting means, means for holding the take-up lever in an ascertained position, a ratchet-wheel disposed adjacent the take-up lever for actuation thereby, a compensating pulley connected to one of the brake-levers, and a pinion adapted for actuation by the take-up lever for causing rotation of the compensating pulley, and means for preventing backward rotation of the compensating pulley.

2. In slack-adjusting mechanism, the combination with brake-beams and brake-levers carried thereby, an operating-bar connected to one of the aforesaid brake-levers for actuation thereof to set the brakes, a take-up lever connected to the operating-bar for actuation under abnormal conditions, spring means for holding the take-up lever in a normal position, a ratchet-wheel disposed adjacent the take-up lever for actuation thereby, a toothed compensating pulley connected to one of the brake-levers and adapted to take up slack in the connections, a pinion rotatable by the ratchet-wheels under actuation of the take-up lever and disposed in meshing relation with the compensating pulley so as to cause revolution of the latter, and means for preventing backward movement of the compensating pulley.

3. In slack-adjusting mechanism, the combination with brake-beams and brake-levers carried thereby, an operating-bar, a take-up lever connected to the operating-bar for actuation under abnormal conditions, spring means for holding the take-up lever in an ascertained position, a shaft constituting the pivot means for the take-up lever, a ratchet-wheel mounted upon the said shaft for actuation by the take-up lever to cause revolution of the shaft, a toothed pinion keyed to the shaft, a compensating pulley disposed adjacent the aforesaid pinion and provided with teeth in meshing relation with the said pinion, connecting means between the said compensating pulley and one of the brake-levers, whereby actuation of the take-up lever will cause rotation of the compensating pulley and thereby taking up any slack in the connecting means aforesaid.

4. In a slack-adjusting mechanism, the combination with brake-beams and brake-levers thereon, an operating-bar, a bracket, a shaft mounted in said bracket, a take-up lever pivoted to the said shaft, a ratchet-wheel mounted upon the shaft aforesaid for actuation by the take-up lever to rotate the shaft, a toothed pinion keyed to the shaft, a compensating pulley mounted upon the bracket and provided with an annular recess upon one side thereof, the outermost portions being toothed so as to mesh with the teeth upon the pinion, connecting means between the compensating pulley and one of the brake-levers, secondary connecting means between the take-up lever and the operating-bar of the brake-mechanism for actuation of the take-up lever under abnormal conditions, a spring for holding the take-up lever in an ascertained position and a pawl disposed upon the bracket and adapted to engage the ratchet-wheel to prevent backward rotation thereof.

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

EDWARD E. CROWELL. [L. S.]

Witnesses:

C. B. KELLEHER,

C. F. MANNING.