No. 756,092. PATENTED MAR. 29, 1904.

F. E. BEATTY.

BRAKE ADJUSTER.

APPLICATION FILED JUNE 30, 1903.

NO MODEL.

Fig. 1.

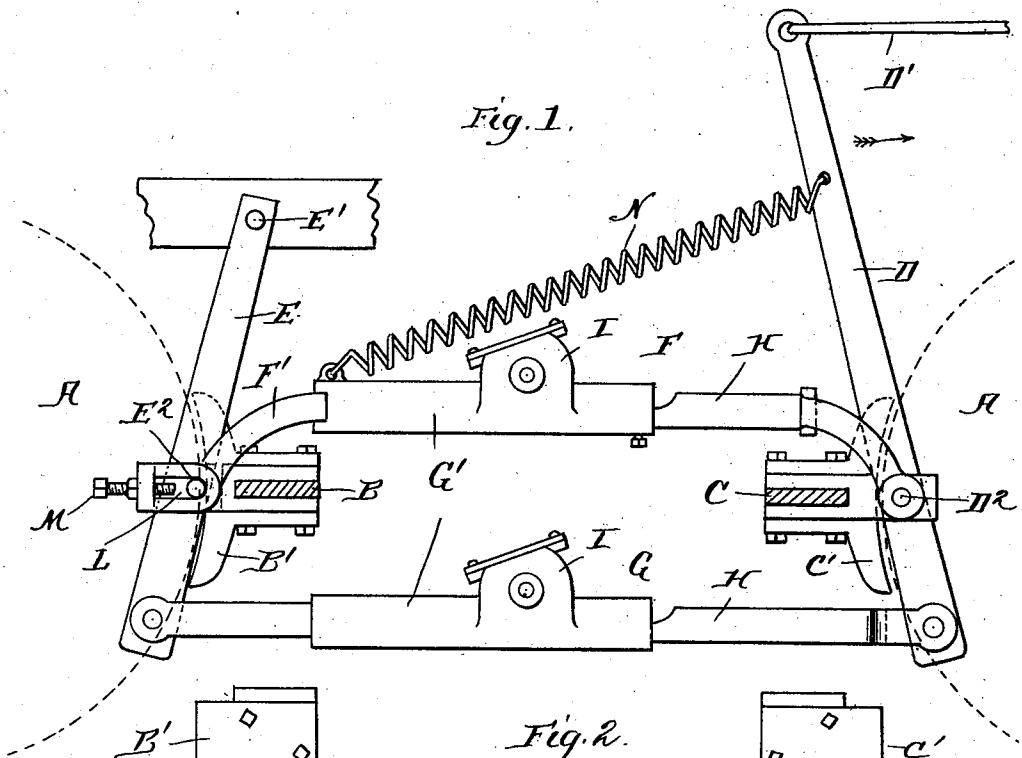


Fig. 2.

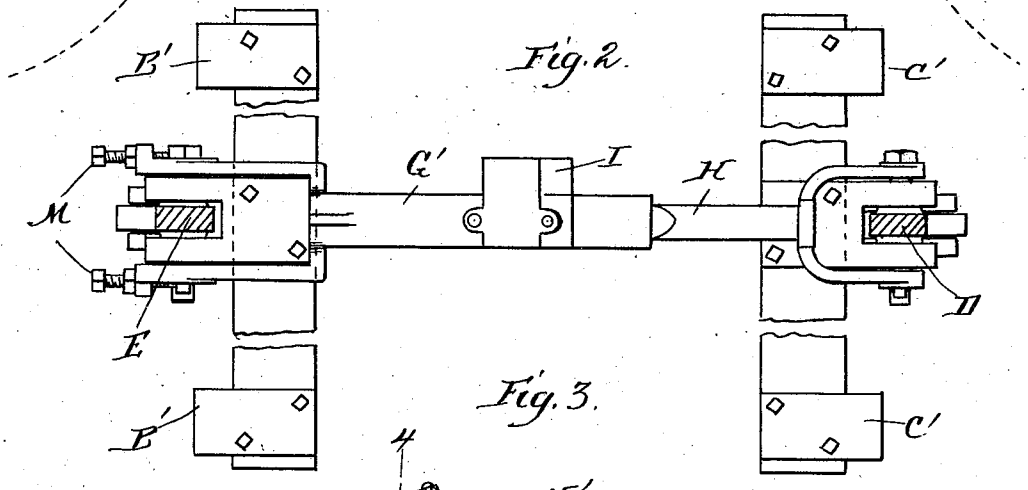


Fig. 3.

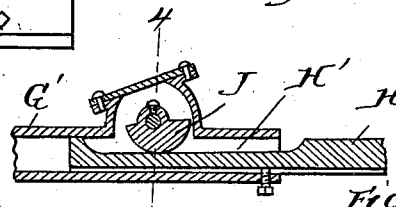
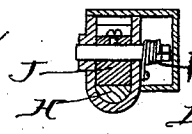


Fig. 4.



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

No. 756,092. Patented March 29, 1904.

UNITED STATES PATENT OFFICE.

FRANKLIN E. BEATTY, OF MOUNT AIRY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO D. DAWSON YEAKEL, OF CHESTNUT HILL, PENNSYLVANIA.

BRAKE-ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 756,092, dated March 29, 1904.

Application filed June 30, 1903. Serial No. 163,819. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN E. BEATTY, a citizen of the United States, residing at Mount Airy, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Brake-Adjusters, of which the following is a specification.

My invention relates to a new and useful improvement in brake-adjusters, and has for its object to provide a brake apparatus which will automatically adjust the brake-shoes relative to the wheels, so that the brake-shoes will always be a predetermined distance from the wheels when brake is off. Thus the shoes will be adjusted toward the wheels as the shoes and wheels wear away.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my improved apparatus, showing the brake-beam in section; Fig. 2, a plan view of Fig. 1; Fig. 3, a longitudinal section through a portion of one of the telescoping connections, showing the clutch; Fig. 4, a section on the line 4 4 of Fig. 3.

In brakes upon street-cars and the like the brake mechanism is so set when the cars are turned out of the shop that the brake-shoes will be a predetermined distance from the periphery of the wheels when the brake is off; but as the wheels and the shoes wear away this distance will be increased, and therefore decrease the effectiveness of the brake. For the purpose of regulating this the method shown, adopted, and now in use is to provide a connecting-bar between the two brake-beams having a turnbuckle which is screwed up from time to time by hand to bring the brake-shoes nearer the wheels; but of course by this method the shoes are only regulated at intervals and there are times when the brake-shoes will be so far away from the wheels as to decrease the effectiveness of the brake to a considerable extent. My improved apparatus is for the purpose of continually adjusting the brake-shoes according to the wear, this adjustment being done automatically.

A represents the car-wheels; B and C, the brake-beams carrying the brake-shoes B′ and C′.

D is the operating-lever, connected at its upper end to the chain or bar D′, which extends to the means for operating the brake. This lever D is pivoted to the brake-beam C at the point D^2. E is another lever upon the opposite side, which is pivoted to the car at the point E′ at its upper end. This lever E is pivoted at the point E^2 to the brake-beam B, and as the lower ends of the levers D and E are connected together it will be seen that when the lever D is pulled in the direction of the arrow in Fig. 1 both levers will be so moved as to bring the brake-shoes in contact with the wheels.

Thus far described the mechanism is the same as in an ordinary brake.

In order to adjust the brake-shoes automatically, I provide the two telescopic connections F and G. Each of these connections consists of a barrel G′, in which slide rods or plungers H. These rods or plungers H are cut away longitudinally, as represented at H′, so as to provide a flat surface upon the upper side. Each of the barrels G′ is provided with housings I, in which are pivoted the cam-clutches J. These clutches are so formed that the rods or plungers H may be pulled outward, but cannot be forced inward. A spring K upon the spindle of each of the cams serves to hold the cams tightly against the surfaces J′ of the rods. The rod H of the connection F is connected to the pivotal point D^2 of the lever D and brake-beam C. The other end of the barrel G′ of the connection F is provided with a bifurcated portion F′, the prongs of which extend downward upon each side of the pivotal point of the lever E. The brake-beam B and the outer ends of the prongs of

the portion F′ are provided with slots L, through which the pivot E^2 extends, and a set-screw M is threaded through the ends of the prongs into the slots L, so as to limit the movement of the pivot E^2 within the slots.

The outer end of the plunger or rod H of the connection G is pivoted to the lower end of the lever D and the other end of the barrel G′ of the connection G is pivoted to the lower end of the lever E.

N is a spring, connected at one end to the lever D and at the other end to the barrel G′ of the connection F.

The operation of the device is as follows: The distance between the pivot E^2 and the end of the set-screw M determines the distance that the brake-shoes will be away from the wheels when the brake is off, and thus this distance can be regulated as desired. When the lever D is moved in the direction of the arrow in Fig. 1, the spring N will pull upon the connection F, so as to bring the set-screw M against the pivot E, and the movement of the lever D will bring the shoe C′ against its wheel, and through the connection G the lever E will be rocked, so as to bring the shoe B′ against its wheel. In describing the operation of the automatic regulating, we will say, for instance, that the brake-shoes are set so that each will be one-quarter inch away from the wheel when the brake is off. Then the set-screw M would be one-half inch from the pivot E^2. Now say, for instance, the brake-shoe had worn so that the distance was one-half inch between each shoe and wheel. Then when the lever D was operated the pivot E^2 would strike the set-screw M before the shoes were upon the surface of the wheels. Then the rod H of the connection F would be pulled outward sufficiently to allow the brake-shoes to come in contact with the wheels, and then on releasing the lever D the rod H of the connection F could not return on account of the clutch, and therefore the rod H of the connection G would be pulled out sufficiently far to allow the pivot E^2 to return to its normal position in the other end of the slot opposite the set-screw. Then, as will be seen, instead of a half-inch between the shoes and wheels there would only be one-quarter of an inch, which would be the desired distance. Of course there would never be an adjustment of one-half inch, such as described, as the adjustment would be automatic, taking up only that portion worn by each operation of the brake. Therefore the movement each time of the plungers H relative to the barrels G′ would only be an inevitable fraction of an inch and would only keep the brake-shoes at a predetermined distance from the wheels.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirt of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a brake-adjuster, the combination of brake-beams, brake-shoes attached thereto with an operating-lever pivoted intermediate of its two ends to one brake-beam, and operating connection connected to the upper end of said lever, a second lever pivoted at its upper end to the car, said second lever being pivoted intermediate of its two ends to the other brake-beam, a telescoping connection consisting of a barrel and plunger therein, a clutch carried by the barrel and operating upon the plunger so as to allow the same to be withdrawn but preventing its return, the plunger being pivoted to the brake-beam to which the operating-lever is connected, a connection between the barrel of said hanger and the other brake-beam, said connection being provided with a slot, a pin carried by the brake-beam extending through the slot, a spring secured to the barrel of the telescopic connection at one end, and to the operating-lever at the other end, a second telescoping connection consisting of a barrel and plunger fitting therein, a clutch carried by the barrel and operating upon the plunger so as to allow the withdrawal of the same but preventing its return, said plunger being pivoted to the lower end of the operating-lever and the barrel being pivoted to the lower end of the other lever, as and for the purpose specified.

2. In a brake-adjuster, two brake-beams, brake-shoes carried by said brake-beams, an operating-lever adapted to be operated from its upper end, said operating-lever being pivoted intermediate of its two ends to one brake-beam, a second lever pivoted at its upper end to the car-body and pivoted intermediate of its two ends to the other brake-beam, a telescopic connection connecting the lower ends of each of the levers, said telescopic connection consisting of two parts operating one in the other, means for allowing the separation of the two parts but preventing their return, a second telescopic connection extending between the two brake-beams, said connection consisting of two parts operating one in the other, means for allowing the separation of the two parts but preventing their return, one of the parts being pivoted to one brake-beam, the other part being provided with a slot, a pin secured to the other brake-beam extending in the slot, and means for regulating the movement of the pin within the slot, and a spring connected at one end to the second telescopic connection and at the other end to the operating-lever, as and for the purpose specified.

3. In a brake-adjuster, the combination of a car-body, wheels, brake-beams and brake-shoes with an operating-lever pivoted intermediate of its two ends to one brake-beam, a second lever pivoted at its upper end to the

car-body, and pivoted intermediate of its two ends to the other brake-beam, a connection extending between the lower ends of the two levers, a connection extending between the two brake-beams, said last-named connection being slotted so as to regulate the distance of the shoes from the wheels when the brake is off, adjustable means for varying this distance, and means whereby the connections will be lengthened as the brake-shoes and wheels are worn away so as to keep a predetermined distance between the same, as specified.

4. In a brake-adjuster, the combination in a car-body, wheels, brake-beams and brake-shoes with an operating-lever pivoted intermediate of its two ends to one brake-beam, a second lever pivoted to the car-body at its upper end and pivoted intermediate of its two ends to the other brake-beam, a telescopic connection consisting of a barrel and plunger fitting therein, the plunger being pivoted to the lower end of the operating-lever, and the barrel being pivoted to the lower end of the other lever, a friction-clutch carried by the barrel adapted to operate upon the plunger so as to allow the withdrawal of the same but preventing its return, a second telescopic connection consisting of a barrel and plunger, a clutch carried by the barrel operating upon the plunger to allow the withdrawal of the same but preventing its return, the plunger being pivoted to one brake-beam, the barrel being provided with a slot, a pin connected to the other brake-beam extending into the slot, a set-screw limiting the movement of the pin within the slot, and a spring connected at one end to the barrel of the last-named telescopic connection and at the other end to the operating-lever above its connection with the brake-beam, as specified.

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

FRANKLIN E. BEATTY.

Witnesses:
JAMES C. REYNOLDS,
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