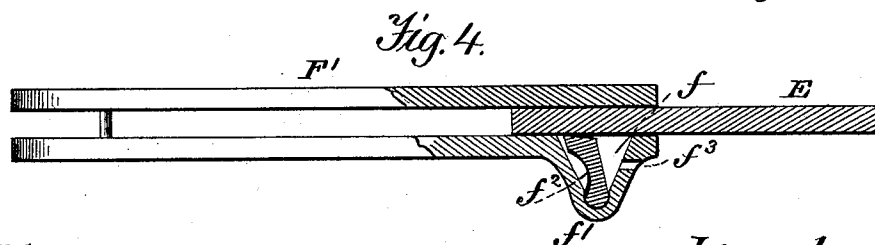
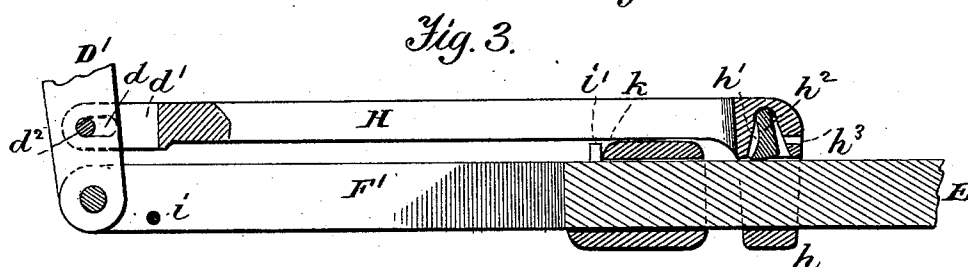
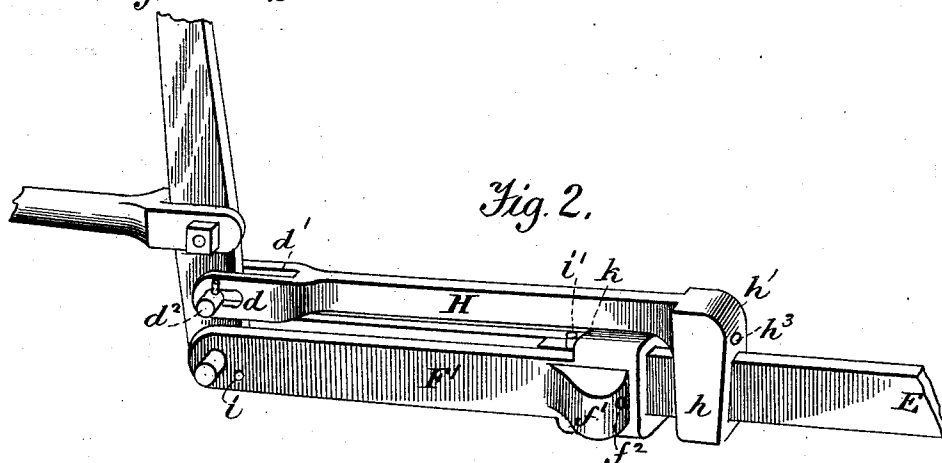
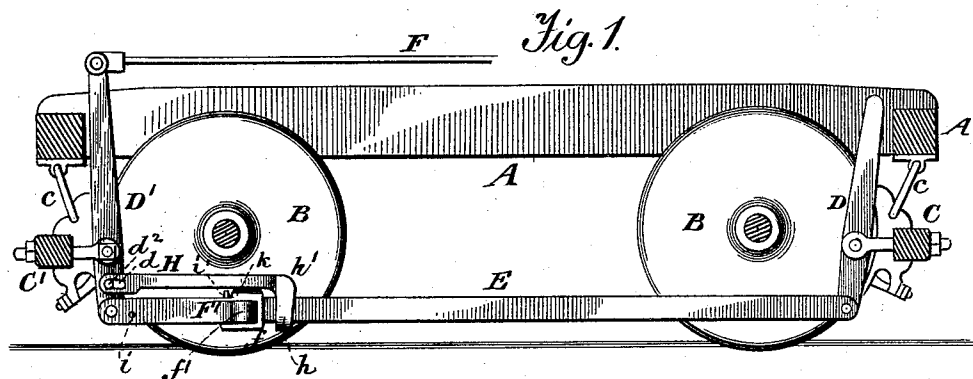


(No Model.)

E. D. EAMES.
AUTOMATIC BRAKE ADJUSTER.

No. 410,960.

Patented Sept. 10, 1889.



Witnesses.
A. Ruppert,
E. Case.

Inventor.
Elisha D. Eames,
by *G. H. H. Howard*
Attys.

UNITED STATES PATENT OFFICE.

ELISHA D. EAMES, OF WATERTOWN, ASSIGNOR, OF ONE-HALF TO WILLIAM A. FOSTER, OF CORNING, NEW YORK.

AUTOMATIC BRAKE-ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 410,960, dated September 10, 1889.

Application filed September 22, 1888. Serial No. 286,092. (No model.)

To all whom it may concern:

Be it known that I, ELISHA D. EAMES, of Watertown, in the county of Jefferson and State of New York, have invented certain Improvements in Automatic Brake-Adjusters, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of this invention is to preserve automatically the adjustment of the brake-shoes to the normal or predetermined distance from the wheels intended to exist when brakes are off, so that upon the wear of the shoes the increased amount of space between the shoes and the wheels will be at once taken up and the original distance between the shoes and the wheels existing when brakes are off re-established. Various devices for effecting such a result have been projected, some of which have attained a greater or lesser degree of success. Of such may be mentioned the inventions described in Patent No. 352,444, granted November 9, 1886, to John B. Burns, and Patent No. 354,401, granted December 14, 1886, to Elisha D. Eames.

My present invention, which embodies the principle set forth in the said two patents, is designed to simplify, cheapen, and render more effective, safe, and reliable the mechanical appliances used.

In the accompanying drawings, Figure 1 is an elevation of a pair of car-wheels with their brakes and appendages, showing the application thereto of my invention. Fig. 2 is a perspective, upon an enlarged scale, of the parts entering chiefly into the invention detached. Fig. 3 is a vertical longitudinal section, and Fig. 4 is a horizontal section of Fig. 2.

Like letters of reference indicate like parts in their respective figures.

A A show parts of the truck-frame, and B B the car-wheels. C C' are the brake-beams suspended by the links c to the truck-frame. D D' are the brake-levers, and E is the lower brake-rod uniting them. F is the rod connecting the upper end of the brake-lever D' to the diaphragm, piston, winding-staff, or other agent for the application of power. All

of said parts and devices may be of any ordinary or approved construction.

The lower end of the brake-lever D is pivoted to the lower brake-rod E, the lever carrying the brake-beam C in the ordinary manner. The other brake-lever D', which carries the brake-beam C', is pivoted to the outer end of a short connection F', which is forked to receive the end of the lever. The fork extends nearly the entire length of the said connection, its inner end being closed at the top and bottom, so as to entirely but loosely surround the rod E, which fits and is adapted to slide within the connection F'. One side of the connection F' is shown as provided with an opening f near its inner end, and also with a pocket f', which projects from the side of the connection, and with the interior of which the opening f communicates. This pocket is for the reception of a dog f², which rests within it and extends through the opening f at an angle to the side of the connection, one end of said dog being in contact with the rod E and the other abutting against the inner wall of the pocket f'. This arrangement allows the rod E to move freely within the connection in one direction, but serves to prevent its movement in the opposite direction unless the dog is held out of contact with the rod E, which can be done, when necessary, by inserting a pin through the hole f³ in said pocket. If necessary, a pocket, with its dog, may be employed at each side of the connection F'. Neither do I limit my invention to the exact construction and location of the dog or dogs, provided it or they is or are adapted to bite or bind upon the rod in the movement described.

H is a link or rod pivoted at its outer end to the brake-lever D' by the pin d². The said end of the link or rod H is forked, as at d', to straddle the lever D', and the fork is provided with a slot d, in which the pivotal pin d² is adapted to have a movement equal to the predetermined distance between the brake-shoes and the wheels when brakes are off. The inner end of the link or rod H is furnished with a strap or shackle h, which fits loosely over the lower brake-rod E, and is adapted to work thereon, as hereinafter de-

scribed. The upper portion of the strap or shackle h is provided with a pocket h' , within which is a dog h^2 , one end of which is in contact with the upper face of the rod E, and the other end abuts against the inner wall of the pocket h' in such a manner as to allow the shackle to move freely over the rod in one direction, but to cause it to grip the rod when moved in the opposite direction unless the dog is held out of contact with the rod, which can be done, when necessary, by inserting a pin through the hole h^3 in said pocket.

I do not limit myself to the construction or location of the dog, provided it is adapted to grip the rod when moved as described. It will be understood that the opposite end of the lower brake-rod E is pivoted to the brake-lever D.

The operation is as follows: The distance which the brake-shoes are designed to move in setting the brakes is, as has been stated, the distance which the pin d^2 is capable of moving in the slot d of the rod H. It is therefore seen that so long as the brake-shoes—they having been properly adjusted to have the required movement—are unworn the lever D' will in the act of setting the brakes only move a distance sufficient to carry the pin d^2 the length of the slot d , and the link or rod H will therefore not be moved; but wear of the shoes having occurred, in order to bring the shoes up to the wheels a greater movement of the lever D' becomes necessary, and this will cause the link or rod H to be pushed forward and the shackle h to slide upon the brake-rod E, the dog h^2 allowing this forward movement. When the brakes are released and the lever D' returns to the position it occupies when brakes are off, it will carry the link H back with it, and in this return movement the dog h^2 will bite on the brake-rod E and cause it to move endwise in the direction of the lever D' a distance equal to that which the pin d^2 moved forward in addition to the length of the slot d , and consequently shortening the connection between the brake-beams, taking up the slack, and restoring the distance which normally existed between the shoes when off and the wheels. The dog f^2

allows this movement of the rod E toward the brake-lever D'; but on a strain being applied to the rod E to move it in the opposite direction the dog f^2 will bite on the rod E and hold it rigidly in position within the connection F'. It will be seen that the action is entirely automatic, and that the prescribed movement of the brake-shoes in the act of braking is always maintained. The movement of the brake-rod E toward the lever D' is checked by the end of the rod striking a pin i , standing across the forked end of the connection F', while the movement of the brake-rod E in an opposite direction is limited by its pin i' coming in contact with the shoulder k of the short connection F'.

Having described my invention, I claim—

1. In a brake mechanism, a brake-lever, a short connection pivoted thereto, a brake-rod adapted to slide upon the short connection, a rod pivoted by means of a slot and pin to the brake-lever and having at its inner end a strap or shackle, combined with a dog applied to or within the strap or shackle and a dog or dogs applied to or within the said short connection, substantially as set forth, the first dog being adapted to grip the brake-rod as the brake-lever is moved to shorten said rod, and the second dog or dogs to detain the brake-rod and prevent its return movement upon the opposite motion of the brake-lever, as described.

2. In a brake mechanism, a brake-lever, a brake-rod, and a shackle connected to said lever carrying a dog, combined with a second shackle, also carrying a dog, and with a link or rod connecting the brake-lever with said second shackle, the construction and operation being such that the brake-rod passing through said shackles shall be adjusted longitudinally as the result of the motion given to them by the movement of the brake-lever, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal.

ELISHA D. EAMES. [L. S.]

Witnesses:

GEORGE H. HOWARD,
E. CRUSE.