

(No Model.)

2 Sheets—Sheet 1.

J. A. MARKLEY.

EQUALIZING DEVICE FOR RAILWAY BRAKES.

No. 573,677.

Patented Dec. 22, 1896.

Fig. 6.

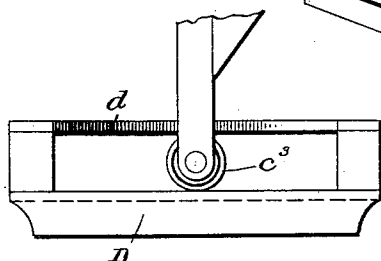


Fig. 1.

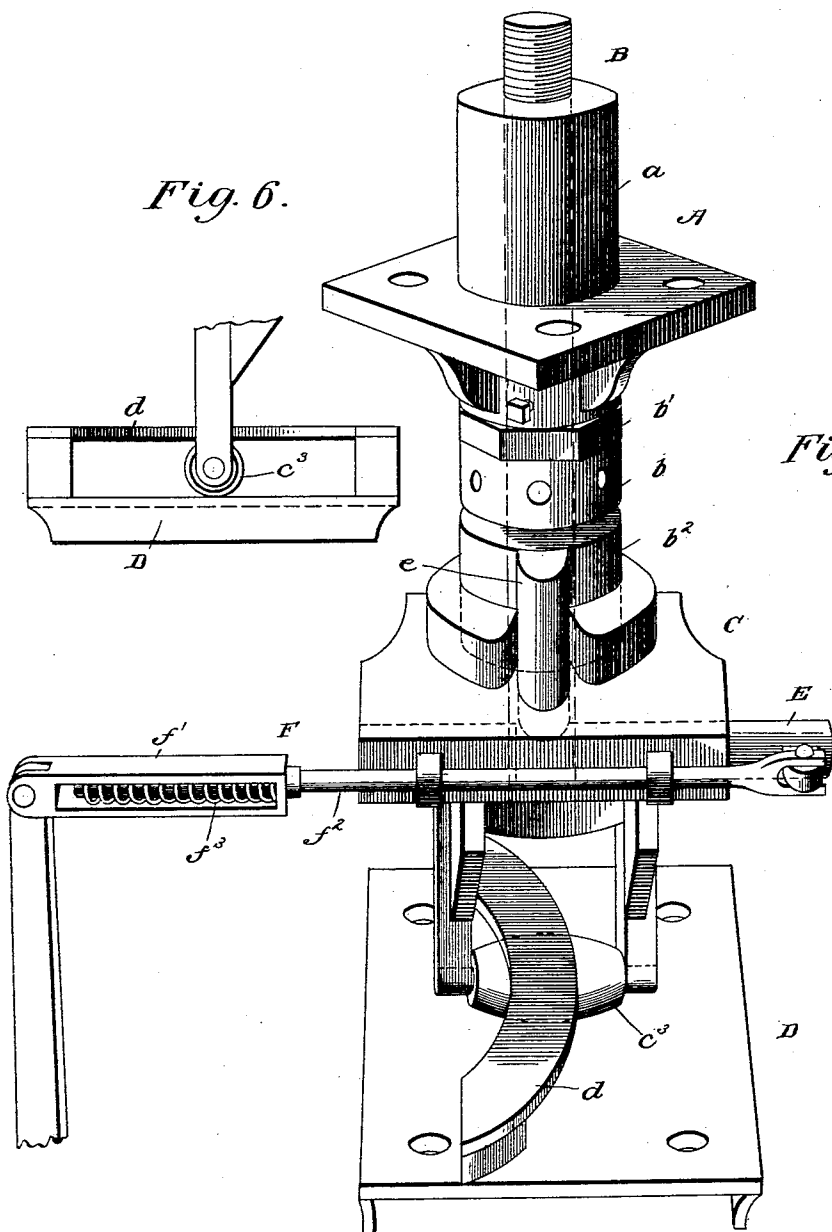
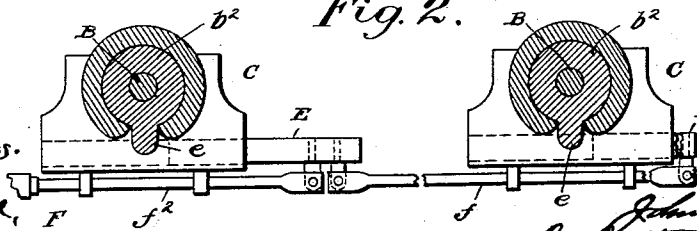


Fig. 2.



Witnesses.

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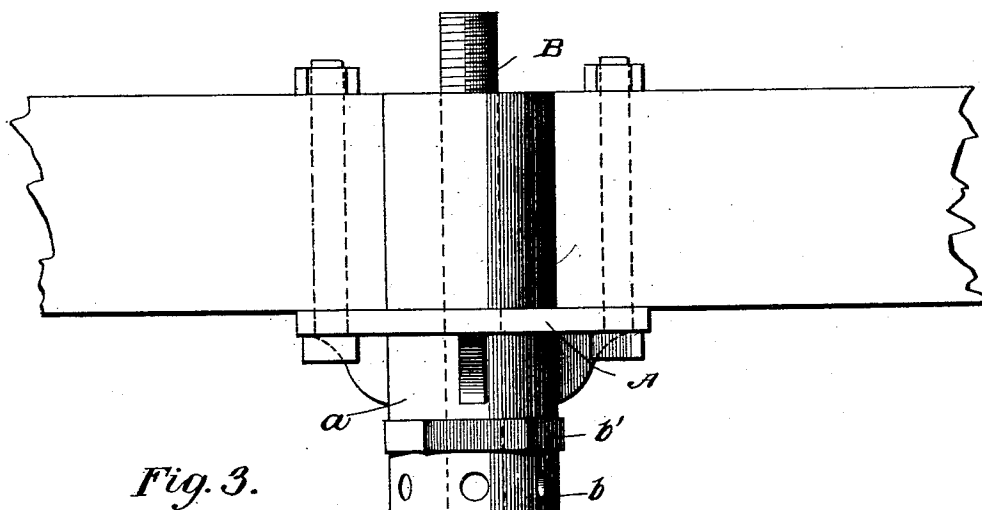


Fig. 3.

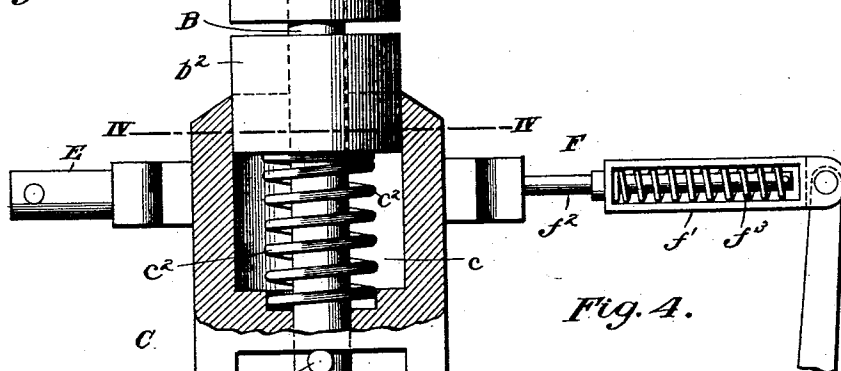
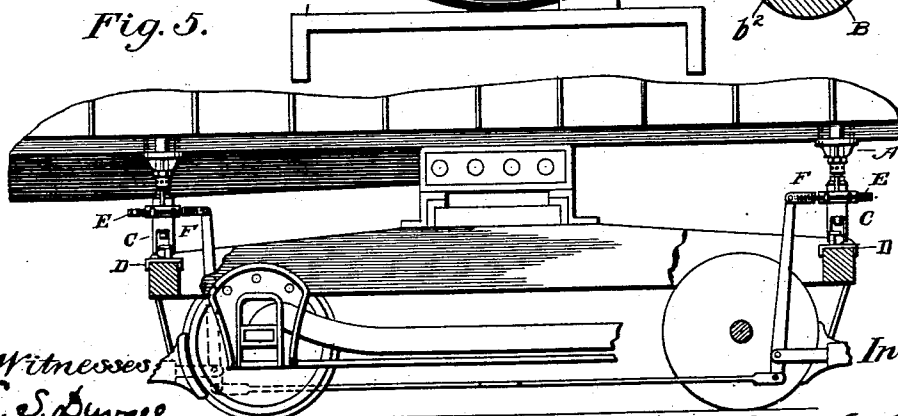


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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EQUALIZING DEVICE FOR RAILWAY-BRAKES.

SPECIFICATION forming part of Letters Patent No. 573,677, dated December 22, 1896.

Application filed July 20, 1896. Serial No. 599,866. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALBERT MARKLEY, a citizen of the United States, residing at Clifton Forge, in the county of Alleghany and State of Virginia, have invented certain new and useful Improvements in Equalizing Devices for Railway-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to equalizing devices, but more particularly to a device or devices for equalizing or distributing the power of the brakes between all the wheels of the trucks of railway cars or coaches.

In the brake mechanism of railway-cars as commonly employed it is the usual practice to arrange the brake-shoes so as to be forced inwardly in order to engage the outer faces of the wheels. Owing to the wheels rotating in the same direction and the pressure exerted thereon by the brake-shoes, one shoe will be forced upward and the other downward, according to the direction of movement of the car or coach, so as to tend to lift or force one end of the truck upward and the other end downward, resulting in a jolting or backlashing action of the cars and in destroying or reducing the pressure of the brake-shoes against the surfaces of the wheels at one end of the truck and materially increasing the pressure of the brake-shoes on the wheels at the other end, so that the shoes not only wear unevenly, but the shoes and wheels at one end of the truck wear much faster and require replacing and readjusting much oftener than those at the other end.

The primary object of my invention is to overcome these objectionable features by providing a device or devices adapted to be applied to railway cars or coaches so as to prevent the tendency of the trucks to cant or tilt when the brakes are applied to the wheels, whereby the power and the pressure exerted by the brakes upon the wheels may be equally distributed and the uneven and unequal wearing of the wheels and brake-shoes materially reduced.

Other objects are to provide a device or devices provided with locking mechanism

adapted to be interposed between the trucks and the body of the car and to provide equalizing devices adapted to be operated by the brake mechanism so as to be simultaneously locked or released therewith without interfering with the usual working of the cars or trucks or the brake-operating mechanism.

A further object is to provide a simple, durable, and efficient equalizing device which may be readily applied to the cars and trucks already in use without altering or changing their construction other than to provide securing means and a connection between the usual brake-operating lever and the locking mechanism.

The invention will be more particularly hereinafter described, and then pointed out in the claims at the end of the description.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of the invention removed from the car and truck. Fig. 2 is a sectional plan, on a reduced scale, taken above the locking mechanism, illustrating how the devices may be simultaneously operated from one side of the truck. Fig. 3 is a side elevation, partly in section, showing the manner in which each device may be secured to the stringers on the body of the car. Fig. 4 is a sectional plan view, on a reduced scale, taken on the line IV IV of Fig. 3. Fig. 5 is a fragmentary view of a car and truck, partly in section and partly in elevation, illustrating an application of the invention and how the locking devices may be operated by the brake mechanism from the opposite sides of the truck; and Fig. 6 is a fragmentary detail elevation of the plate and track for permitting lateral movement of the truck.

In the drawings, A may designate a bracket adapted to be secured to the stringers of a car-body or coach preferably immediately above the forward and rear transverse beam of each car-truck. This bracket may be of any suitable or preferred form and may comprise an apertured plate through which the bolts pass for securing the same to the stringers or car-body, and a preferably cylindrical portion or boss *a*, extending above and below said plate, through which is a preferably threaded aperture for the reception of the

threaded end of a bolt or rod B. The bolt B may have a nut b , secured to or formed integrally therewith, provided with a polygonal outer surface or with apertures, as shown, for a wrench or spanner, so as to rotate and adjust the rod according to the distance between the car-body and truck, a lock-nut b' being preferably provided on said bolt adapted to abut against the under surface of the bracket-boss, so as to rigidly hold and prevent movement of the rod when adjusted. Upon the rod may be adjustably secured, by a set-screw or otherwise, a collar b^2 , adapted to slide into a recess c , formed in a guide block or head C. The guide block or head is arranged to slide upon the rod B and has its downward movement thereon limited by a key or pin c' , passing through said rod and adapted to abut against the under side of the guide-block in order to prevent the downward movement of one end of the truck, as hereinafter explained, though any suitable means, as a nut arranged upon the end of the rod, may be employed for this purpose. A spring c^2 may be arranged within the recess c around the rod B and interposed between the lower surface of said recess and the lower surface of the collar b^2 , so as to yieldingly hold the guide-block upon the rod, the lower end of the guide-block being preferably bifurcated or provided with two arms, in which the shaft of a roller c^3 is journaled. This roller rests upon a plate D, which is adapted to be secured to the transverse upper beam of the truck, preferably centrally thereof, as shown in Fig. 5, and is preferably provided with a track or guide d , arranged above the roller c^3 , so as to retain the guide-block upon the plate, said track being curved to an arc with the pivot of the truck as a center in order to permit lateral movement of the truck when passing around curves without affecting the operation of the equalizing device. By this means the downward movement of the truck is limited and various adjustments of the device secured according to the distance between the car and the truck, and a yielding connection formed, so as to permit both vertical and lateral movement of the truck in order to properly support the car or coach above the rails.

For the purpose of preventing upward movement of the end of the truck or trucks when the brakes are applied, in order to assist in equally distributing the pressure of the brake-shoes upon the wheels, I preferably provide suitable locking mechanism adapted to prevent upward movement of the guide-block upon the rod B, adapted to be connected to the brake-operating mechanism. Any desired form of mechanism may be employed for this purpose; but I preferably provide the collar b^2 with a projection or stem e , Figs. 1 and 4, adapted to pass through a vertical recess or aperture in the guide-block, said guide-block being provided with a transverse aperture traversing or intersecting the vertical recess therein, in which a locking-bolt E is

adapted to slide, so as to engage the lower edge or surface of the stem e and rigidly hold the guide-block from vertical movement. The locking-bolt E may have a projection thereon, to which the end of a connecting-rod F is pivoted or otherwise secured. This rod may have a portion thereon guided in projections or lugs on the guide-block, Fig. 1, and may have its outer end connected to brake-levers at each end of the truck when the form of truck shown in Fig. 5 is employed, or, with the usual form of brake-operating mechanism, the locking-bolt at one end of the truck is connected by a rod f , Fig. 2, to the locking-bolt of the other device, which is connected to the brake-operating lever so as to be operated simultaneously therewith from one side of the truck. At f' is an end piece for the connecting-rod F, adapted to slide upon the body of the rod portion f^2 , a spring f^3 being interposed between the inner end of the end piece and the outer end of the rod portion, so that should the locking-bolt E strike the side of the stem or projection e on the collar b^2 , instead of passing under the same, the end piece which is connected to the brake mechanism will yield sufficiently to permit the brakes to be applied without breaking or destroying any of the parts of the equalizing device.

The manner of using and constructing the invention will be readily understood from the foregoing description, when taken in connection with the accompanying drawings.

Assuming the parts to be in the position shown in Fig. 5 and the coach moving to the right, it will be readily seen, if the brakes are applied, that the wheels will tend to force the shoes around in the direction of their rotation, resulting in drawing the forward end of the truck downward and forcing its rear end upward. This downward movement of the truck will be effectually prevented by the guide-block engaging the key or pin c' on the rod B, while simultaneously with the operation of the brake mechanism the connecting-rod F of the forward equalizing device will force the locking-bolt E inward, so as to engage the under surface of the stem or projection e and prevent upward movement of the guide-block upon the rods B, so that the rear end of the truck will be prevented from being forced upward, thus holding the truck in a plane substantially parallel with the track-rails. By connecting the locking-bolt of each device so as to operate simultaneously with the brake mechanism the canting or tilting of the truck will be prevented whatever direction the coach may be traveling.

I thus provide means which will permit one or more cars or coaches to be properly supported upon a truck or trucks, which will prevent tilting or canting of said trucks, so as to avoid jolting or backlashing of the cars when the brakes are applied, and which will equally distribute the pressure of the brake-shoes upon the surfaces of the wheels

in order to prevent their uneven or unequal wearing, so that the necessity for replacing and readjusting said shoes may be reduced to a minimum and the efficiency of the brakes and their operating mechanism materially enhanced.

It is obvious that various forms of devices may be employed for preventing the canting or tilting of the truck, and hence I do not limit myself to the form shown and described. The manner of operating the locking mechanism and the form thereof may be changed, as, for instance, the locking-bolt may have a V-shaped or other shaped end adapted to engage a serrated surface upon the stem or projection *e* or other portion of the bolt B, and the general arrangement and construction of some of the parts may be varied and some of the parts may be dispensed with or others substituted therefor without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a railway-car body and a supporting-truck, of mechanism arranged to normally permit upward and lateral movement of the ends of the truck; said mechanism being adapted to be operated to prevent the truck from tilting or canting, and means for operating said mechanism, whereby backlashing or jolting of the car may be avoided, substantially as described.

2. The combination with a railway-car body and a supporting-truck, of brakes adapted to engage the wheels of said truck, mechanism arranged to normally permit upward and lateral movement of the ends of the truck; said mechanism being adapted to be operated to prevent the truck from tilting or canting, and means for simultaneously operating the brakes and said mechanism, whereby backlashing or jolting of the car may be avoided, substantially as described.

3. The combination with a railway-car body and a supporting-truck, of a device or devices interposed between the car-body and truck and provided with locking mechanism adapted to prevent the tilting or canting of the truck, and means for operating the locking mechanism, whereby the pressure of the brake-shoes upon the wheels may be equally distributed and the backlashing or jolting of the cars prevented, substantially as described.

4. The combination with a railway-car body, a supporting-truck and suitable brake-operating mechanism therefor, of a device or devices provided with locking mechanism interposed between the car-body and truck, and means connecting the locking mechanism to the brake-operating mechanism so as to be simultaneously operated therewith, whereby the tilting or canting of the car-truck may be prevented, and the pressure of the brake-shoes upon the wheels equally distributed, substantially as described.

5. The combination with a railway-car

body, a supporting-truck and suitable brake-operating mechanism therefor, of equalizing devices arranged at the fore and rear portions of the truck and interposed between the same and the car-body, each device comprising a bracket secured to the car, a rod depending from the bracket, a guide block or head yieldingly held upon the rod, and locking mechanism for preventing movement of the guide-block, together with means connecting the locking and brake mechanisms so as to be simultaneously operated, whereby the tilting or canting of the car-truck may be prevented and the pressure of the brake-shoes upon the wheels equally distributed, substantially as described.

6. The combination with a railway-car body, a supporting-truck and suitable brake mechanism, of rods depending from the car-body and arranged above the fore and rear portions of the truck, guide blocks or heads yieldingly supported upon the rods so as to move vertically thereon, and connections between the guide-blocks and the trucks so as to permit lateral movement of said truck, locking mechanisms for preventing vertical movement of the guide-blocks, means for connecting the locking mechanisms, together with a yielding connection between one of the locking mechanisms and the brake-operating mechanism so as to be simultaneously operated therewith, whereby the tilting or canting of the car-trucks may be prevented and the pressure upon the wheels equally distributed, substantially as described.

7. In a brake-power equalizer for railway-cars, the combination with a rod adapted to be secured to a railway-car body, of a guide block or head and means for yieldingly supporting the head upon the rod, a locking-bolt extending transversely through the guide-block and adapted to abut against a projection carried by the rod so as to prevent upward movement of the guide-block, together with means for operating the locking-bolt, substantially as described.

8. A brake-power equalizer for railway-cars, comprising a bracket adapted to be secured to the car-body, a rod depending from the bracket, a guide block or head yieldingly supported upon the rod, means adapted to slidingly hold the guide-block to the truck, a collar rigidly held to the rod and provided with a projection or stem thereon, a locking-bolt extending transversely through the guide-block and adapted to abut against said projection, and means for operating the locking-bolt, substantially as described.

9. A brake-power equalizer for railway-cars, comprising a bracket adapted to be secured to a car-body, a rod depending from the bracket, a collar secured to the rod and provided with a projection or stem thereon, a guide block or head yieldingly supported upon the rod so as to engage the collar, a plate provided with a track adapted to slidingly hold the guide-block to the truck, a

locking-bolt passing transversely through the guide-block adapted to engage the projection on the collar, together with means for operating said bolt, whereby vertical movement of the guide-block may be prevented so as to prevent tilting or canting of the truck, substantially as described.

10. A brake-power equalizer for railway-cars, comprising a bracket adapted to be secured to a car-body, a screw-threaded rod adjustably held in said bracket and depending therefrom, a collar adjustably secured to the rod and provided with a projection or stem thereon, a guide block or head provided with a recess so as to permit the guide-block to slide over the collar, a spring surrounding the rod and interposed between the guide-block and collar for yieldingly supporting the latter upon the rod, means for limiting the downward movement of the guide-block, a roller arranged upon the end of the guide-block, a plate provided with a track fitting over the roller adapted to permit lateral movement of the truck, a locking-bolt passing transversely through the guide-block adapted to engage the projection or stem on the collar, together with means for operating said bolt, substantially as described.

11. A brake-power equalizer for railway-cars, comprising a bracket adapted to be secured to a car-body, a screw-threaded rod ad-

justably held in said bracket and depending therefrom, a collar adjustably secured to the rod and provided with a projection or stem thereon, a guide block or head provided with a recess so as to permit the guide-block to slide over the collar, a spring arranged in the recess around the rod and interposed between the guide-block and collar so as to permit vertical movement of the guide-block, a pin or projection arranged on the rod for limiting the downward movement of the guide-block, a roller rotatably held in the lower end of the guide-block, a plate adapted to be secured to the truck upon which the roller rests, a curved track or guide carried by the plate and arranged above the roller so as to hold the guide-block to the truck and permit lateral movement of the latter, a locking-bolt passing transversely through the guide-block adapted to engage the projection or stem on the collar, together with a connecting-rod adapted to be secured to the brake-operating lever for operating the locking-bolt, substantially as described.

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

JOHN ALBERT MARKLEY.

Witnesses:

J. A. E. CRISWELL,
CHARLES E. RIORDON.