

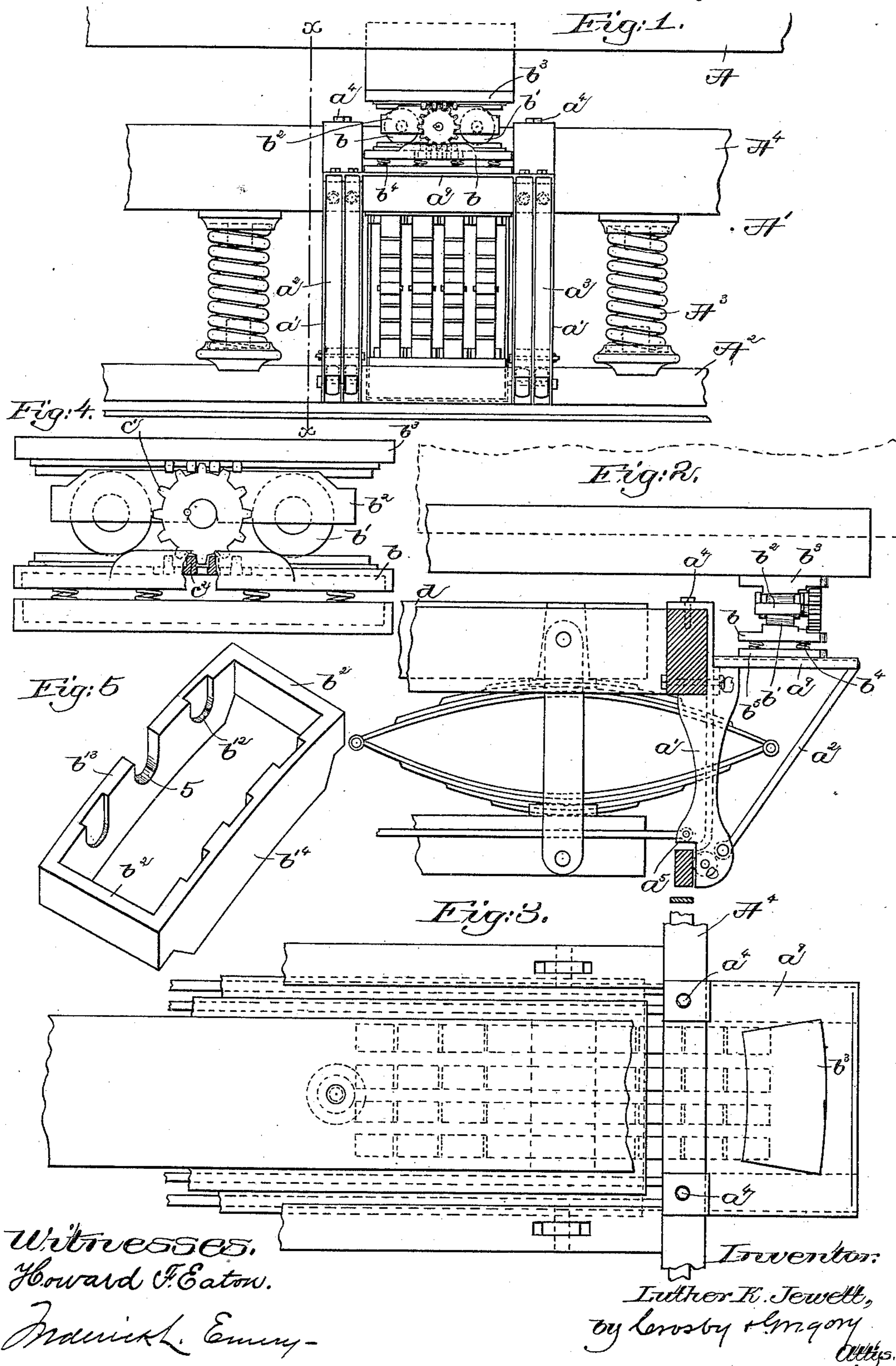
(No Model.)

2 Sheets—Sheet 1.

L. K. JEWETT.  
ANTI-FRICTION SUPPORT FOR CARS.

No. 427,691.

Patented May 13, 1890.



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# UNITED STATES PATENT OFFICE.

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## ANTI-FRICTION SUPPORT FOR CARS.

SPECIFICATION forming part of Letters Patent No. 427,691, dated May 13, 1890.

Application filed June 29, 1889. Serial No. 316,027. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER K. JEWETT, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Anti-Friction Supports, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a novel anti-friction bearing or support especially adapted, among other things, to be used as a side bearing for car-bodies, whereby the friction between the car-body and its truck, or the bolster thereof, as the said car-body is carried around a curve in the railway-track, may be reduced to a minimum, thus effecting a very considerable saving in the motive power employed to draw the car over the road, and at the same time enabling the car to be run at a greater speed with safety.

In accordance with my invention my improved anti-friction bearing or support consists, essentially, of a base plate or frame preferably provided with side ledges or strips to form a guideway, between which are located anti-friction devices, preferably two or more rollers having projections or arbors to support a spacing-frame, composed, essentially, of side bars, as will be described, the said rollers being made of sufficiently large diameter to project above the top surface of the spacing-frame and receive upon them a top frame preferably made as a plate having side strips or ledges similar to the base plate. The top plate and the base plate or frame are provided, as herein shown, with gear-teeth to be engaged by a cog or pinion mounted on a projection or arbor of one or more of the said rollers. The top plate or frame has secured to or resting upon it the body to be moved—as, for instance, a car-body—and the weight of the said body and top plate is entirely supported upon the rollers. The side bars of the spacing-frame are provided with notches or recesses to receive the ends of the projections or arbors of the rollers, and the said notches or recesses in the side bars are located at the proper distance apart to prevent the surfaces of adjacent rollers from coming in contact with each

other, thus obviating friction between the said rollers.

My invention therefore consists, essentially, in the combination, with a roller-supporting base plate or frame, of anti-friction devices movable thereon, a spacing-frame, a top plate or frame resting upon the said anti-friction devices, and gearing located between the said plates or frames to engage gearing on one of the said anti-friction surfaces to rotate the same, substantially as will be described.

Other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of a sufficient portion of a railway-car provided with my improved anti-friction bearing or support to enable my invention to be understood, I having chosen to illustrate my invention as applied to a car; Fig. 2, a transverse section of the car-truck shown in Fig. 1 on line  $x x$ ; Fig. 3, a top or plan view of the car-truck shown in Fig. 2, with the anti-friction bearings supported thereon; Fig. 4, a side elevation, on an enlarged scale, of the anti-friction bearing or support shown separately; Fig. 5, an isometric view of the spacing-frame inverted from its normal or operative position; Fig. 6, a top or plan view of the anti-friction bearing on an enlarged scale, with the top plate removed; Fig. 7, a transverse section of the anti-friction bearing on line  $y y$ , Fig. 6, the top plate or frame being shown in position; Fig. 8, an under side view of the top plate removed; Fig. 9, an under side view of the spacing-frame with the rollers in operative position; Fig. 10, a detail to be referred to; and Figs. 11 and 12, modifications to be referred to.

Referring to Figs. 1 and 2, A represents a car-body, which may be supported at its center in usual manner by a truck A', of any usual construction.

The truck A', provided, as shown, with the usual equalizer-bar A<sup>2</sup> and equalizer-springs A<sup>3</sup>, has firmly secured to its side frames, only one A<sup>4</sup> of which is shown, a side support consisting, essentially, of two side pieces, each made in two parts  $a' a^2$ , and a connecting bar or plate  $a^3$ , substantially as shown and de-

scribed in another application, Serial No. 302,657, filed by me March 9, 1889, wherein like parts are designated by like letters. The side support referred to is firmly secured to the side frame  $A^4$  of the truck, as by bolts  $a^4$ , and the part  $a'$  of the said side support is provided with a shoulder  $a^5$ , extended over the equalizer-bar, so that a firm or rigid side support is obtained for the car-body when tipped, as described in the application referred to.

The side support, as shown in Figs. 1 and 2, sustains my improved anti-friction bearing or support, consisting, essentially, of a base plate or frame  $b$ , rollers  $b'$ , resting thereon, a spacing-frame  $b^2$ , and a top plate or frame  $b^3$ , the said base-plate being preferably supported, as herein shown in Figs. 1 and 2, by yielding buffers—preferably spiral springs  $b^4$ —having their upper sides extended into sockets in the under side of the base-plate and their lower ends extended into similar sockets in a plate  $b^5$ , which rests upon the plate  $a^9$ , but which may form part thereof.

The base plate or frame  $b$  is provided with a guideway on its upper surface, preferably formed by side strips or ledges  $b^6$   $b^7$ . The side strips  $b^6$   $b^7$  are located a sufficient distance apart to receive between them anti-friction devices, preferably conically-shaped rollers  $b'$ , there being three such rollers herein shown, and for convenience marked 2, 3, and 4. (See Figs. 6 and 9.) Each roller  $b'$  is provided with projections or arbors  $b^9$   $b^{10}$ , extended from its opposite ends, the said arbors of the rollers 2 4 being extended into recesses  $b^{12}$  (see Fig. 5) in the sides  $b^{13}$   $b^{14}$  of a spacing-frame for said rollers, the said sides being united by cross bars or pieces  $b^{14}$ . The arbor  $b^{10}$  of the center roller  $b'$  (marked 3) is provided, as shown, with an enlargement or collar  $c$ , which abuts against one side, as  $b^{13}$ , of the spacing-frame when the latter is fitted upon the arbors of the rollers, thereby preventing lateral movement of the roller marked 3. The notches or recesses  $b^{12}$ , into which extend the arbors of the rollers marked 2 4, project but partially through the sides of the supporting-frame, as clearly shown in Fig. 5, thus preventing lateral movement of the said rollers, and, as herein shown, the center notch in the side  $b^{13}$  (herein marked 5 in Fig. 5) is extended entirely through the said side to permit the arbor  $b^{10}$  of the roller 3 to project beyond the side  $b^{13}$  of the spacing-frame and receive upon it a cog or pinion  $c'$  to engage gear-teeth  $c^2$  on the base-plate  $b$ . The rollers  $b'$  support a top plate or frame  $b^3$  similar in construction to the base-plate  $b$ , it being provided with side strips or ledges  $c^4$   $c^6$  to form a guideway into which the rollers extend, and the said rollers are made of sufficiently large diameter to project above the upper surface of the spacing-frame, and thus support the top plate entirely free from the

said spacing-frame. The top plate  $b^3$  is provided, as herein shown, with gear-teeth to be engaged by the cog or pinion  $c'$ . The gear-teeth  $c^2$  on the bottom plate are preferably cast with a slot or space between them, through which water, dust, &c., may pass, and to strengthen the said teeth a re-enforcing strip  $c^7$  (see Figs. 6, 7, and 10) may be cast integral with or secured to the base-plate. The top plate  $b^3$  is firmly secured to the car-body.

I have shown the anti-friction bearing as sustained by a side support secured to the truck-frame; but I do not desire to limit myself in this respect, as the same may be supported on and secured to the bolster  $d$  of the car-truck, as shown in Fig. 11, it taking the place of the usual bolster-curve plates.

The notches or recesses in the sides of the spacing-frame are located at such distance apart as to prevent the surfaces of the rollers from coming in contact.

When applied to a car-truck, the base-plate, spacing-frame, and top plate will preferably be made in the arcs of circles having as their center the transverse center of the truck.

In practice my improved anti-friction support is especially advantageous when the car is going around curves in the track, for the weight of the car-body is thrown upon the rollers, which are relieved from all friction, thus enabling the car-body to curve with a minimum friction, thereby effecting a very considerable saving in the motive power used to draw the car.

I prefer to employ rollers as the anti-friction surface; but I do not desire to limit my invention to this construction, as spherical balls  $d^2$ , provided with arbors, may be employed, the said balls running in a guideway made as a groove  $d^3$  in the top and bottom plates. (See Fig. 12.)

I prefer to employ the auxiliary plate  $b^5$  when the anti-friction bearing is used on a car-truck; but the said plate may be dispensed with and the anti-friction bearing used for other purposes—as, for instance, in moving heavy objects.

When used on car-trucks, the springs  $b^4$  assist to give the car-body an easy riding motion.

I claim—

1. In an anti-friction support, the combination, with a roller-supporting base plate or frame, of anti-friction devices, substantially as described, movable thereon, a spacing-frame, a top plate or frame resting upon the said anti-friction devices, and gearing located between the said plates or frames to engage gearing on one of the said anti-friction devices to rotate the same, substantially as described.

2. In an anti-friction support, the combination, with a base plate or frame provided with a guideway, of anti-friction devices, substantially as described, movable thereon, a spacing-frame to keep said anti-friction devices

separated, and a top plate or frame resting on the said anti-friction devices, substantially as described.

3. In an anti-friction support, the combination, with a base plate or frame provided with a guideway, of anti-friction rollers movable thereon, a spacing-frame, a top plate or frame provided with a guideway, and gearing between said top plate and base-plate, to operate substantially as described.

4. The combination, with a car-truck and a car-body mounted thereon, of an anti-friction support sustained at the side of the truck and consisting of a base-plate, anti-friction rollers movable thereon, a spacing-frame, a top plate or frame secured to the car-body, and gearing intermediate of the said top plate and base-plate, substantially as described.

5. The combination, with a car-truck, a car-body mounted thereon, and a side support for said car-body, of an anti-friction support sustained by said side support and composed of a base plate or frame, anti-friction rollers movable thereon, a spacing-frame, a top plate or frame attached to the car-body, and gearing intermediate of the said top and base plates, substantially as described.

6. The combination, with a car-truck, a car-body mounted thereon, and a side support for said car-body, of an anti-friction support sus-

tained by said side support and composed of a base plate or frame, anti-friction rollers movable thereon, a spacing-frame, a top plate or frame attached to the car-body, and gearing intermediate of the said top and base plates, and springs interposed between said side support and the base-plate of the anti-friction support, substantially as described.

7. In an anti-friction support, the combination, with a base plate or frame provided with a guideway, of anti-friction devices, substantially as described, movable thereon, a spacing-frame to keep said anti-friction devices separated, and a top plate or frame provided with a guideway and resting on said anti-friction devices, substantially as described.

8. In an anti-friction support, the combination, with a base plate or frame, of anti-friction rollers provided with arbors, a spacing-frame supported by said arbors, and a top plate or frame resting on the said rollers out of contact with the said spacing-frame, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LUTHER K. JEWETT.

Witnesses:

JAS. H. CHURCHILL,  
EMMA J. BENNETT.