

(No Model.)

L. K. JEWETT.

CAR BRAKE.

No. 309,548.

Patented Dec. 23, 1884.

Fig. 1.

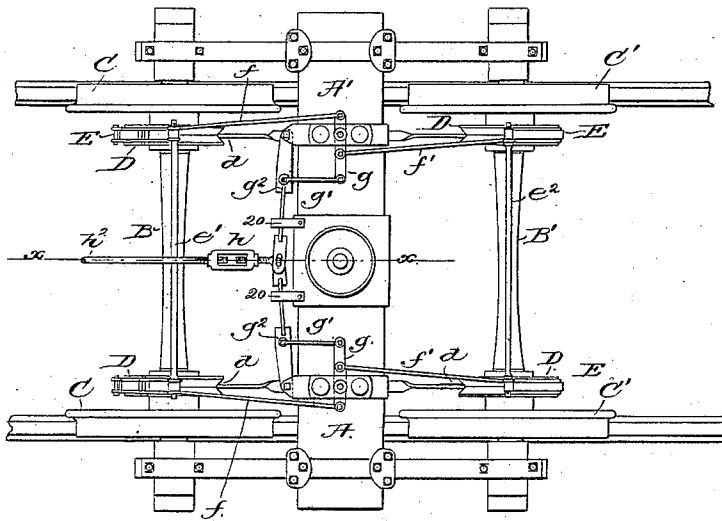


Fig. 2.

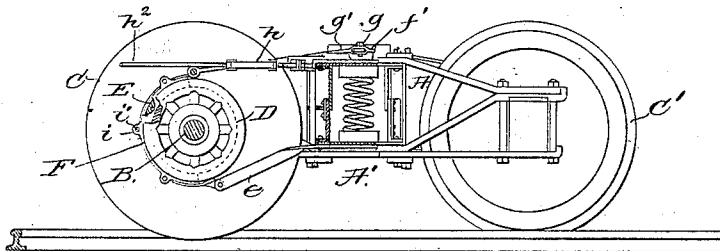


Fig. 3.

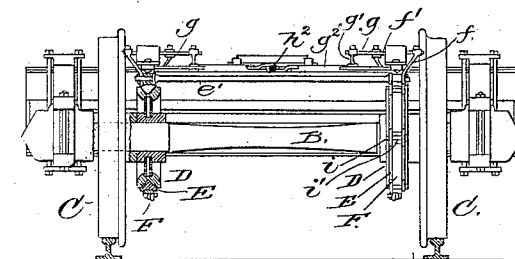


Fig. 4.

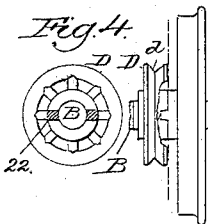


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

LUTHER K. JEWETT, OF FITCHBURG, MASSACHUSETTS.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 309,548, dated December 23, 1884.

Application filed March 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, LUTHER K. JEWETT, of Fitchburg, county of Worcester, State of Massachusetts, have invented an improvement in Car-Brakes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to that class of brake mechanism wherein the brake-shoes are applied to independent brake-wheels attached to the axles between the car-wheels.

The nature of my invention is fully set forth in the following description, and particularly pointed out in the claims.

Figure 1 is a plan-view of a car-truck, showing my invention applied thereto; Fig. 2, a vertical section of a part of the car-truck in the line $x x$; Fig. 3, an end view thereof, partially in section; and Figs. 4 and 5, details to be referred to.

In the annexed drawings, A represents a metallic truck-frame with its bolster A', substantially of the construction described in a former patent granted to me, No. 279,951, and B B' the axles, having the attached track-wheels C C', the said parts, with the side pieces, forming the truck of a car, as indicated in the drawings. The axles B B' are provided, just inside of the wheels C C', with smaller brake-wheels D, preferably two on each axle, which are forced onto the axles by hydraulic pressure in the same manner as the wheels C C' are usually forced thereon, said brake-wheels D having, in the present instance, V-shaped peripheral grooves d , to receive the curved V-shaped brake-shoes E, detachably connected with the shoe-straps F by means of the lugs i and pins i' . The lower ends of the shoe-straps are attached to strong bars e , rigidly fastened to the bolster A', the upper ends of each pair of brake-shoes which engage the brake-wheels D on each of the axles B B' being respectively secured to brake-bars $e' e'$, running parallel with the axles B B'. Rods $f f'$ connect the brake-bars $e' e'$ to two levers, g , pivoted to the frame A, the inner ends of said levers g being in turn connected by rods g' with other levers, g^2 , the arms of which are of spring-steel, and are extended

through the loops 20, attached to the truck-frame A, (see Fig. 1,) the said loops serving as stops for the said arms in their outward movement, as when applying the brake-shoes, so that the brakeman cannot force the brake-shoes so closely against the brake-wheels as to entirely check the rotation of the axles and enable the track-wheels to slide on the track. The levers g^2 are pivoted on the curve-plates attached to the frame A, and their inner ends, brought together at the middle of the truck, are joined to one end of the brake-rods h^2 by a turn-buckle, or right-and-left-threaded nut or sleeve h , the other end of the brake-rod being carried toward the end of the car and suitably attached by a brake-chain (not shown) to the usual wheel or drum on the usual brake-shaft; or the rod h^2 may be operated in any usual manner, so that the brake mechanism may be put in motion to apply the brake-shoes to the brake-wheels.

The spring-levers g^2 may be of such stiffness as to yield when the power exerted on them is in excess of that which it is desired to throw upon the brake-wheels.

The turn-buckle h or its equivalent is a matter of very great convenience, as by its use the wear between the brake-shoes and brake-wheels, or between usual brake-shoes and the car-wheels, may be compensated for by shortening the rod. This wear is very considerable in practice, and it is not unfrequent that the brake-rod or its connected chain has to be cut off or shortened to keep the brake-shoe properly up to its work.

With the turn-buckle the adjustment of a worn brake apparatus may be quickly made, and I desire it to be understood that I do not limit my invention to putting the turn-buckle or nut into the brake mechanism in the brake-rod, for the same advantages might be gained by using two turn-buckles—one on each of the rods g' or in the rods $f f'$.

It will be noticed upon inspection of Fig. 1 that upon drawing the brake-rod h forward the levers and their connecting-rods will be so operated that the brake-shoes E will be applied to the brake-wheels D on both axles B B' to bring the truck to a stop. The V-shaped surfaces of the brake wheel and shoe, each

working into the other, exert greater power than were the surfaces of the said parts flat or smooth, as usual.

The brake-wheels and the shoes will preferably be of chilled iron; but the shoe-straps are of wrought bands or a low grade of steel.

In my improved brake apparatus the brake-shoe embraces fully one-half of the brake-wheel, so that great power may be exerted quickly.

As before stated, with the usual brake-shoes the rims of the car-wheels are much worn, and so also are the flanges of the wheels, thus weakening them and rendering the flanges liable to break on curved track.

Brake-shoes such as ordinarily used are connected with brake-beams suspended from the car body or truck by chains or links. These bars are long enough to cross both rails and hold the brake-shoes in line with the car-wheels, and consequently with the track, and it frequently happens that by accident one or both ends of the brake-beam drop, in which case the shoe or part of the beam usually falls on the track, throwing off the track the wheel first to meet it.

By employing independent brake-wheels, as herein shown, between the usual car-wheels, I am enabled to dispense with the usual swinging brake-beam, and should a brake-shoe break it cannot fall on the track, but will be held at the central part of the track by the wrought-metal bars *e*. The shoe-straps *F F'* will have transverse depressions, as shown at 20, Fig. 5, to receive the bolts *i'*, and, viewing Fig. 4, the face of the hub of the brake-wheel will have a diametrical depression or groove, 22, to receive a corresponding projection at the inner end of the hub of the wheel next to it.

The brake-wheels *D* are each constructed with a hub, a grooved rim or periphery, and independent wrought-iron hollow or tubular spokes, as clearly shown in the drawings, more especially in Fig. 3, so as to provide an open-work brake-wheel to prevent the heat generated by the application of the brake-shoes thereto from being conducted to the axles.

I find it essential to success to provide open brake-wheels, for where solid wheels are used an excess of heat is conducted to the axle, which soon injuriously affects the axle-journals.

I do not claim as a part of my invention solid brake-wheels applied to a car-axle having the usual track-wheels.

I claim—

1. The car-axle having track-wheels, and the independent brake-wheels secured on the said axle, the said brake-wheels consisting each of a hub, hollow or tubular spokes, and a grooved felly or rim, combined with brake-shoes adapted to be applied to the brake-wheels, substantially as described.

2. A truck-frame, a car-axle having track-wheels, and bars *e*, rigidly secured to the said

truck, combined with independent grooved brake-wheels secured on the axles near each end and just within the track-wheels, shoe-straps pivoted at their lower ends to the bars *e*, and at their upper ends to a brake-bar and provided with segmental brake-shoes detachably connected with the shoe-straps, and wedge shape in cross-section to fit the groove in the brake-wheels, and mechanism for operating the said brake-shoes, substantially as and for the purposes set forth.

3. A car-axle having track-wheels, and provided with two independent brake-wheels applied thereto between the track-wheels and contiguous thereto, each of said brake-wheels consisting of a hub, spokes, and periphery or felly, combined with a truck-frame, bars *e*, secured thereto, shoe-straps pivoted to the bars and provided with brake-shoes, the latter being adapted to be applied to the brake-wheels, and with mechanism for operating the brake-shoes, substantially as and for the purposes set forth.

4. The car-axle having track-wheels, grooved brake-wheels secured on the axles between the track-wheels and contiguous thereto, as specified, combined with curved wrought-metal shoe-straps having transverse grooves or recesses in their outer surfaces, and brake-shoes wedge shape in cross-section, provided with lugs and adapted to be detachably connected with the shoe-straps, and bolts to secure the straps and shoes together, said bolts occupying the recesses in said straps, substantially as described.

5. A car-axle having track-wheels and provided with independent brake-wheels secured thereon, bars *e*, brake-shoes to embrace the brake-wheels, the levers *g*, and rods to connect them with the brake-shoes, and spring-armed levers *g'*, to move the levers *g*, combined with stops for the levers *g'* to operate, substantially as described.

6. A truck-frame having bars *e* rigidly secured thereto and provided with a pair of car-axles having track-wheels, combined with brake-wheels secured on the car-axles, shoe-straps having brake-shoes and pivoted at one end to the bars *e*, levers *g*, pivoted to the truck-frame, connecting-rods *f f'*, and mechanism for operating the levers *g* to apply the brakes, substantially as described.

7. A truck-frame having bars *e* rigidly secured thereto, and provided with a pair of car-axles having track-wheels combined with brake-wheels secured on the car-axles, shoe-straps having brake-shoes and pivoted at one end to the bars *e*, brake-bars *e' e''*, secured to the remaining or upper ends of the shoe-straps, levers *g*, fulcrumed between their ends to the truck-frame, rods *f f'*, to connect the brake-bars *e' e''* with the levers *g*, one on either side of their fulcrum, and means for operating the levers *g* to apply the brakes, substantially as described.

8. In a car-brake apparatus, an axle, an in-

dependent brake-wheel, a brake-shoe and mechanism to operate the said brake-shoe, the said mechanism containing spring-armed levers g^2 , substantially as described, and stops
5 for the same, whereby the maximum friction or pressure of the brake-shoe against the brake-wheels is limited, substantially as described.

9. In a car-brake mechanism, levers g^2 , having spring-arms, brake-shoes, and intermediate
10 links and levers to operate the brake-shoes, and stops to regulate the movement of the said levers g^2 , combined with a rod provided with

a turn-buckle or right-and-left-threaded nut, substantially as described, to enable the ready adjustment of the parts as the brake shoe and
15 wheels become worn, as set forth.

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

LUTHER K. JEWETT.

Witnesses:

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