No. 638,639. Patented Dec. 5, 1899.

L. L. LOGAN.

CAR BRAKE.

(Application filed Apr. 19, 1899.)

(No Model.)

Fig. 1.

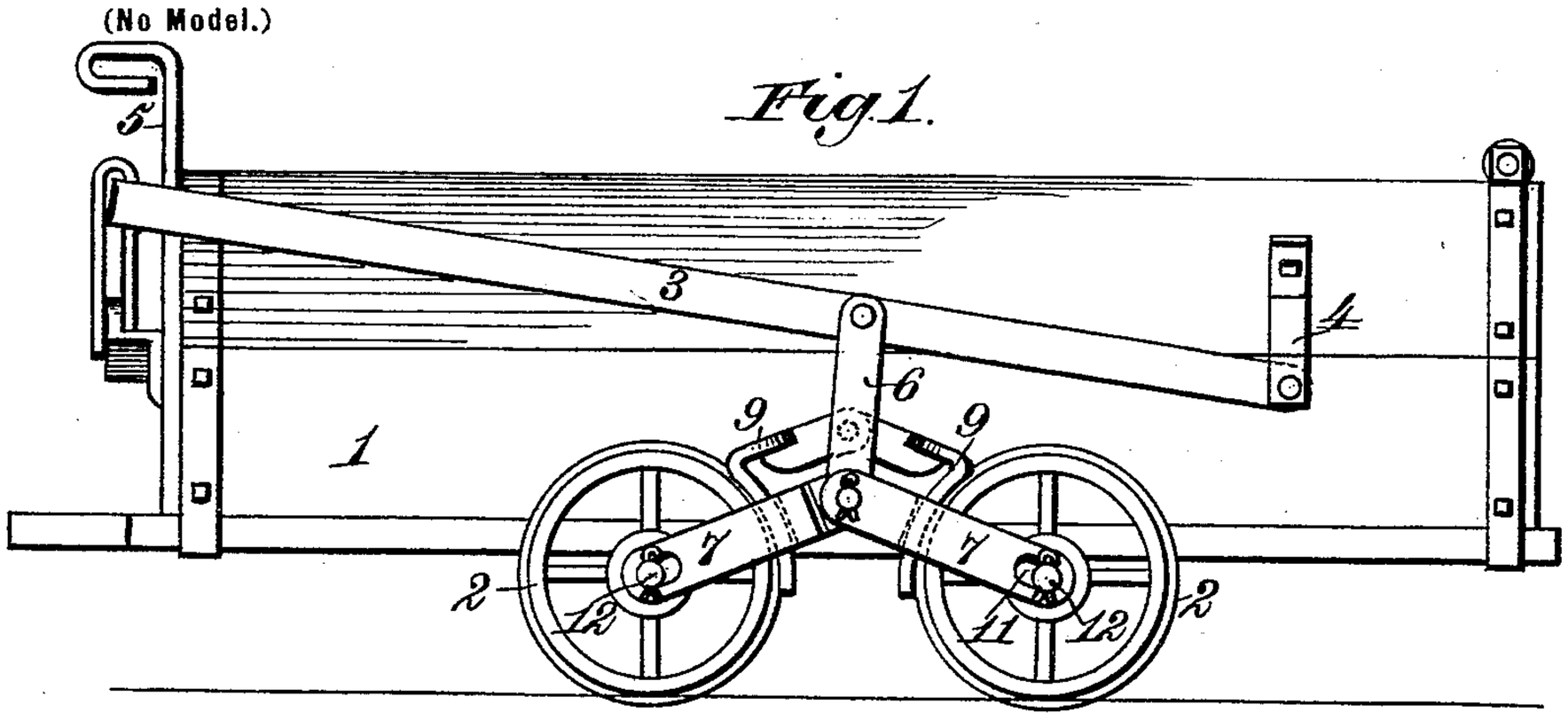


Fig. 2.

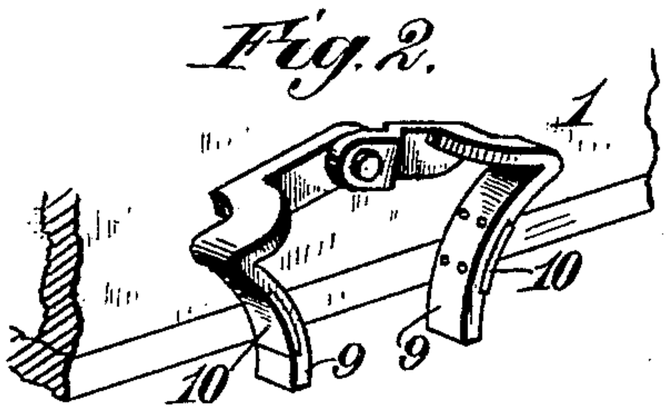


Fig. 3.

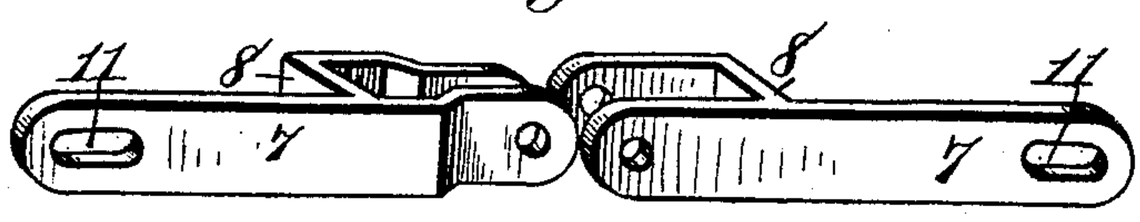


Fig. 4.

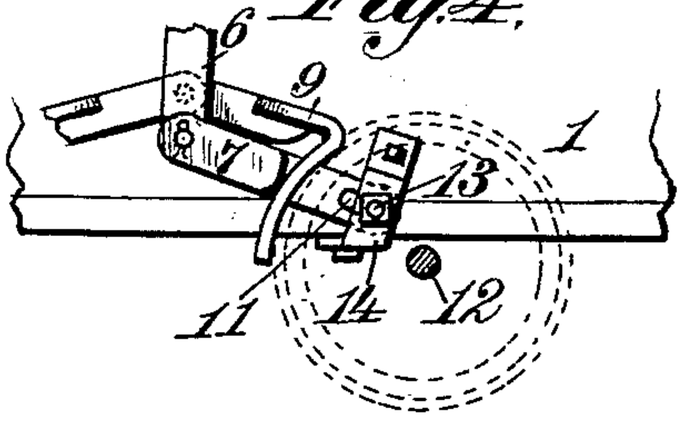


Fig. 5.

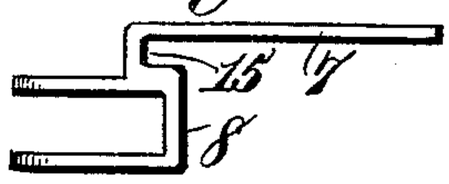


Fig. 6.

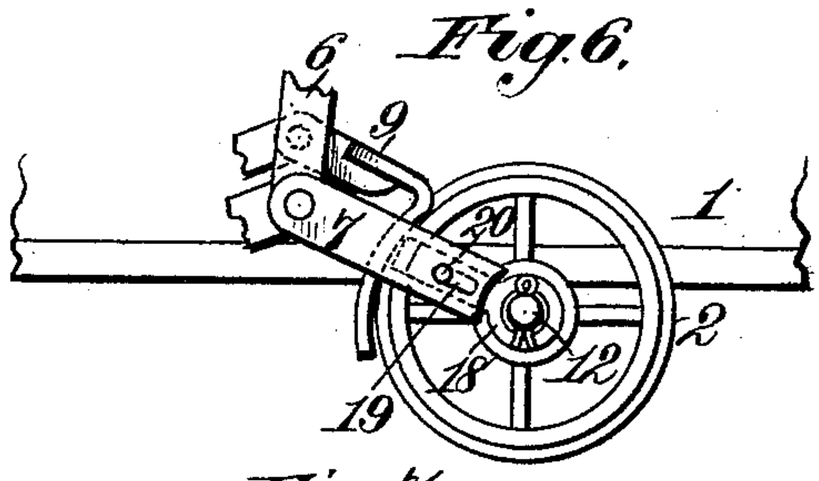


Fig. 7.

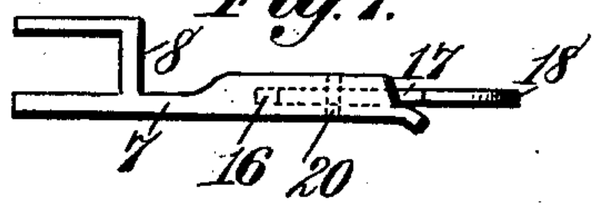
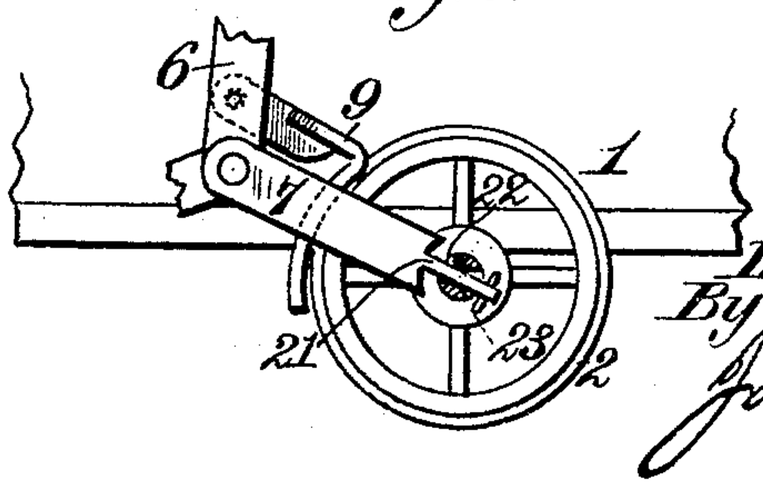


Fig. 8.



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UNITED STATES PATENT OFFICE.

LAVALETTE L. LOGAN, OF SCRANTON, PENNSYLVANIA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 638,639, dated December 5, 1899.

Application filed April 19, 1899. Serial No. 713,595. (No model.)

To all whom it may concern:

Be it known that I, LAVALETTE L. LOGAN, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented new and useful Improvements in Car-Brakes, of which the following is a specification.

This invention relates to car-brakes of a character more especially adapted for use on mine-cars and similar vehicles; and it consists in a brake mechanism comprising a pair of toggle-levers, pivotally supported at their jointed inner ends between the forward and rear car-wheels and shiftably supported at their outer ends, and wheel-engaging brake devices intermediate the ends of said levers and controlled thereby to be engaged with the wheel-rims or released therefrom, as required.

The invention further consists in features of construction and novel combinations of parts in a car or vehicle brake, as hereinafter described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a view of a mine-car, showing one application of my improved brake wherein the toggle-levers or brake-arms are slidingly supported at their outer ends on the car-wheel axles to operate radially. Fig. 2 is a view of a pair of swinging brake-shoes that are to be pivotally suspended independent of the toggle-levers or brake-arms in position to be carried against the wheel-rims by means of said toggle-levers or brake-arms. Fig. 3 is a view of a pair of brake-arms or toggle-levers. Fig. 4 is a detail view illustrating a modification whereby the outer ends of the toggle-levers may be shiftably supported eccentrically to the wheel-axles. Fig. 5 is a plan of a toggle-lever slightly modified for use at the inner side of a car-wheel. Fig. 6 shows a modified application of the invention, in which a radial brake-arm or lever is constructed and arranged to have a sliding or telescopic engagement with a radial projection or supporting-arm provided on the wheel-axle. Fig. 7 is a plan of the modified form of radial brake-arm or lever and the slidingly-engaged supporting-arm at the outer end of said lever. Fig. 8 is a detail view illustrating a modification of the invention in which the outer shiftably-supported end of the brake-arm or toggle-lever is provided with a tongue having a sliding engagement in a socket or perforation extended diagonally through the wheel-axle.

The reference-numeral 1 designates a mine-car mounted on the axles of four wheels 2, preferably arranged for the application of brakes between the forward and rear wheels of each side.

A main brake-operating lever 3, Fig. 1, may be arranged on each side of the car, one end being fulcrumed to a bracket 4, secured to the side of the car near or toward its forward end. The levers 3 on opposite sides of the car may be connected at their rear ends with any convenient hand-lever 5, for which a suitable lock or ratchet may be provided.

From each lever 3 there is pivotally suspended a depending link 6 at a point above and between the car-wheels. The lower end of this link 6 is constructed for the pivotal attachment of a pair of toggle-levers or brake-arms 7, Figs. 1 and 3. The jointed inner ends of these arms or levers 7 have a pivotal connection with each other and with the lower end of the depending link 6, and provision is made for shiftable support of the outer ends of said levers, as hereinafter described. These toggle-levers or brake-arms 7 are preferably bifurcated at the ends which are pivoted to the link 6, and one side of each lever is provided with an offset or shoulder 8, located intermediate the ends of the lever, preferably at the base of the laterally widened and bifurcated lever end. This offsetting shoulder 8 may be made sufficiently broad and heavy to serve, if desired, as a brake appliance or shoe for direct engagement with a wheel-rim in order to effect a desired braking action. In some cases, however, I may employ the shoulders 8 of the levers or arms 7 as a means for swinging or forcing into engaging contact with the wheel-rims a pair of independent pivotally-suspended brake-shoes 9, Fig. 2, that are supported independent of the levers or arms 7. As shown in Fig. 2, these pivotally-suspended brake-shoes 9 are so formed or constructed as to be capable of jointed or pivotal connection at their upper ends with the side of the car or a projection thereon, while their free lower ends are made to occupy a depending position between the lever-shoulders 8 and adjacent wheel-rims. The

depending pivotally-suspended brake-shoes 9 may each have a curvature suited to effecting a proper braking engagement with the rim of the car-wheel, and, if desired, the body-portion of each shoe may be provided with a renewable wear-surface 10 of wood or other material. It will be obvious that by operating the lever 3 in the proper direction the shoulders 8 of the pivotally-suspended toggle-levers or brake-arms 7 will be made to forcibly bear against and carry the independently-suspended brake-shoes 9 into braking engagement with the rims of the car-wheels. When the brake-levers are thrown off, the shoes will swing clear of the wheel-rims.

As a means for shiftably supporting the outer ends of the toggle-levers or brake-arms 7, each of these levers or arms may be provided in its outer end with a sufficiently wide and elongated slot 11, Figs. 1 and 3, the ends of which are preferably concaved or rounded to correspond with the peripheral curvature of the axle-spindle 12, on which the said slotted ends of the levers 7 can thus be loosely supported in the manner described in my application, Serial No. 694,122, filed October 20, 1898.

Instead of shiftably supporting the outer ends of the toggle-levers or brake-arms 7 on the wheel-axles 12 and radially thereto they may be supported eccentrically to the wheel-axles, as described in my application, Serial No. 696,929, filed November 19, 1898, by engaging the lever-slot 11 with a fulcrum-pin 13, that is supported by a bracket or guard 14, Fig. 4, secured to the car at a suitable point. As shown in Fig. 5, each toggle-lever 7 may be constructed with a recess 15 to clear the wheel-rim when the levers or brake-arms 7 are to be mounted at the inner sides of the car-wheels.

In Figs. 6, 7, and 8 I have illustrated some other means for shiftably supporting the outer ends of the brake-arms or levers, as by a telescopic connection comprising a socket or recess in one part to receive a tongue or projection on the other part, in the manner described in my application, Serial No. 705,307, filed February 11, 1899. Thus, as shown in Figs. 6 and 7, the outer ends of the brake-arms or levers 7 may be supported from the wheel-axles and in sliding relation therewith by providing a socket 16 in the outer portion of each brake-arm to receive a supporting arm or projection 17, that is provided on each wheel-axle. Each arm or projection 17 is provided at one end with a collar 18, which fits over a car-wheel axle, and in its other end there is a slot 19 for passage of a pin 20, that is also put through the brake-arm or lever for the purpose of allowing each brake-arm only a limited amount of endwise movement, so that through simultaneous and equal movement of the brake-arms or levers the braking-surfaces will all be released together when the brake is let off.

Fig. 8 shows a modification in which the brake-arm or lever 7 is provided at its outer end with a tongue or projection 21 to pass through a socket 22 formed diagonally through the axle 12 or other support. A pin or cotter 23 may be inserted through the outer end portion of the tongue 21 to limit the movement of the brake-arms or levers in such manner that the braking-surfaces will have an equal degree of movement on releasing the brake.

If desired, the brake mechanism can be put on but one side of the car, and the brake-arms or levers 7 may be extended along either the inner or outer sides of the car-wheels, as preferred. It will be observed that with the independent brake-shoes 9 suspended between the wheel-rims and the shoulders 8 of the brake-arms or levers there can be no twist of said levers or brake-arms in applying the brakes, and therefore the said arms or levers can be made comparatively light. The lower ends of the independently-suspended brake-shoes 9 may be extended downward any distance desired, but need not be below the plane of the car-axles, and therefore they will not be injured in case the car should be derailed. If it should be preferred to dispense with the independently-suspended shoes 9, they can be readily detached, and then the shoulders 8 of the brake-arms or levers 7 will afford adequate braking-surfaces for contact with the rims of the car-wheels.

What I claim as my invention is—

1. In a car-brake, the combination of a pair of brake-arms or toggle-levers pivotally supported at their jointed inner ends between the forward and rear car-wheels and having their outer end portions extended along the sides of said car-wheels, means for shiftably supporting the said extended outer ends of said brake-arms or toggle-levers, wheel-engaging brake devices intermediate the ends of said arms or levers, and mechanism for operating said arms or levers, substantially as described.

2. In a car-brake, the combination of a pair of brake-arms or toggle-levers pivotally supported at their jointed inner ends between the forward and rear car-wheels and shiftably supported at their outer ends, each of said arms or levers being provided intermediate its ends with a laterally-projecting shoulder, independently-suspended brake-shoes depending between the wheel-rims and the shoulders on said arms or levers, and means for operating said arms or levers, substantially as described.

3. In a car-brake, the combination of a main operating-lever fulcrumed at the side of the car, a link pivotally suspended from said main lever, a pair of brake-arms or toggle-levers pivotally suspended at their jointed inner ends from said link and having their outer end portions extended along the sides of the forward and rear car-wheels, respectively, means for shiftably supporting the said extended outer ends of said brake-arms or toggle-levers, and wheel-engaging brake

devices intermediate the ends of said brake-arms or toggle-levers, substantially as described.

4. In a car-brake, the combination of a pair of brake-arms or toggle-levers pivotally supported at their jointed inner ends between the forward and rear car-wheels and having their outer end portions extended along the sides of said car-wheels, means for shiftably supporting the said extended outer ends of said brake-arms or toggle-levers, each of said arms or levers being provided intermediate its ends with a laterally-projecting shoulder, and a main lever for operating said brake-arms or toggle-levers, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAVALETTE L. LOGAN.

Witnesses:
O. A. CRANDALL,
DALBYS L. FICKES.