(No Model.)

J. C. JENSEN.

CAR BRAKE.

No. 550,273. Patented Nov. 26, 1895.

Fig. 1.

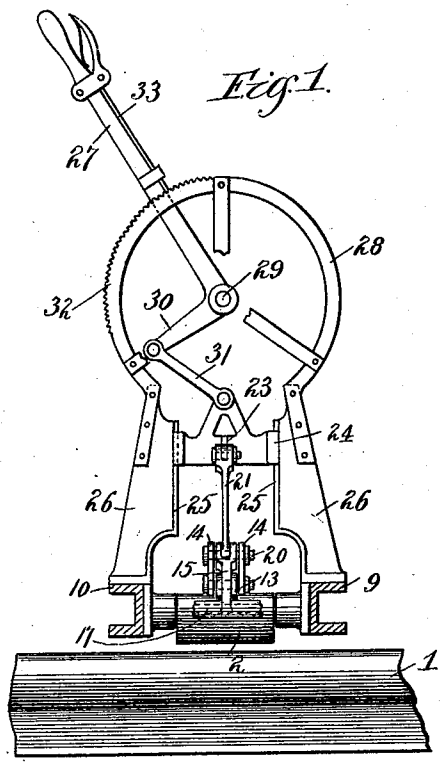


Fig. 2.

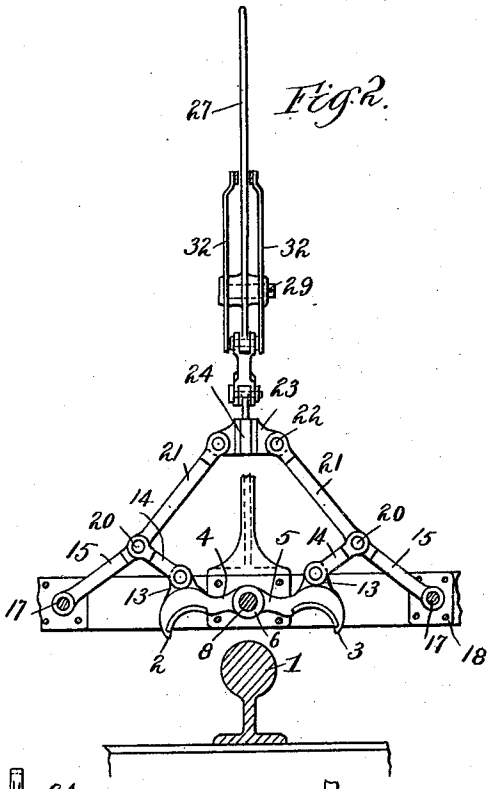


Fig. 3.

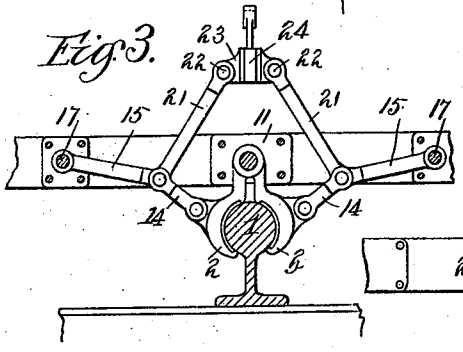


Fig. 5.

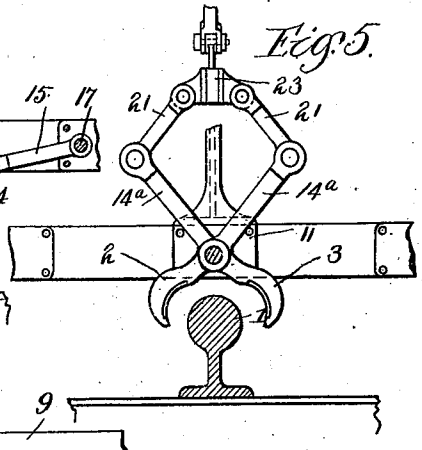


Fig. 6.

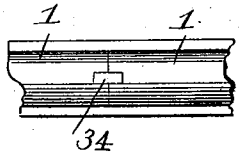
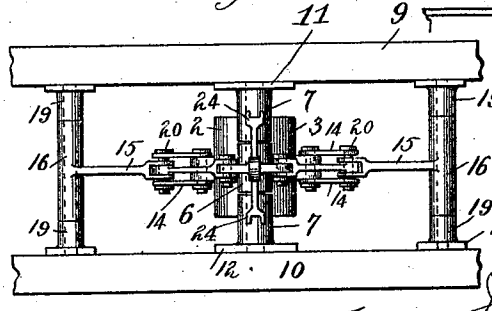


Fig. 4.



Witnesses.

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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 550,273, dated November 26, 1895.

Application filed February 21, 1895. Serial No. 539,220. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. JENSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brakes, of which the following is a full, clear, and exact specification.

My invention relates to car-brakes and more particularly to a form of safety-brake more especially adapted for use on steep grades, where the gripman or other operator is apt to lose control of the car or train through failure of the regular brake to operate.

The primary object of my invention is to provide simple but effective means for gripping a stationary rail on the road-bed, and thus anchoring or checking the movement of the car or train without depending upon mere friction between the brake-shoes and the wheels.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said object and certain other objects hereinafter appearing are attained, all as fully explained with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of my improved brake and the rail with which it engages, showing the brake released. Fig. 2 is a front view of the same, certain parts being broken away. Fig. 3 is a detail front view of the brake and rail, showing the brake in engagement with the latter. Fig. 4 is a plan view with certain superposed parts removed. Fig. 5 is a modification hereinafter described, and Fig. 6 is a plan view of the ends of the rails.

In carrying out my invention I provide the track or rail-bed at the grade or other place where it is desired to operate my safety-brake with a special rail 1, which, when the brake is employed on cable-cars, may be secured to the cross-ties or other suitable foundation between the slot-rail and one of the track-rails. This rail 1 is preferably provided with a head which is round or cylindrical in cross-section and which is firmly engaged or gripped by a pair of jaws or brake-shoes 2 3, whose inner faces are substantially complementary in shape to the exterior of the head of the rail 1. The upper ends of these shoes 2 3 are provided with shanks 4 5, respectively, which carry perforated boxes or sleeves 67, respectively, and these sleeves are journaled upon a stout bar or pintle 8, whose ends are securely fastened to two beams 9 10, carried transversely on the under side of the car, such bar 8 being supported on the beams by plates 11 12. The back portion of each of the shoes or jaws 2 3 is provided with a perforated ear or lug 13, and by means of this ear or lug each of the shoes is connected to the joint of a toggle-lever through the intermediary of a short link 14. Each of the said toggle-levers consists of a link 15, whose lower end is provided with a sleeve or box 16, mounted upon a stout bar or pintle 17, extending from one of the beams 9 10 to the other and being secured thereto at its ends by means of plates 18, having short sockets 19, into which the ends of the bar or pintle 17 project. The other end of the link 15 is pivoted to the link 14 by pin 20 and by the same means is pivotally connected to the lower end of the other one 21 of the links which constitute the toggle-lever. The upper end of each of the links 21 is pivotally connected by pin or bolt 22 to a cross-head 23, and this cross-head 23 is provided with projections or arms 24, whose ends are grooved or otherwise adapted to embrace or engage with vertical ways 25, formed on the inner edges of the standards 26, so that the cross-head 23 will be rigidly confined to a vertical movement. Thus it will be seen that when the cross-head 23 is forced downward, bending the toggles at the joints 20, which joints are always below the straight line between the pivot 22 and pintle 17, the jaws or brake-shoes 2 3 will swing downward on their pintle 8 and will be forced toward each other against the rail-head with great pressure, the links 14 forming another toggle with the links 15 just before the shoes come in contact with the rail, as shown in Fig. 3, and thus make it possible to grip the rail with any desired degree of pressure by the application of slight pressure to the cross-head 23. The links 14 15 are so proportioned as to very nearly approach a straight line when the brake-shoes are firmly in contact with the rail, thus utilizing the maximum power of the toggle constituted by the said links 14 15.

The cross-head 23 may be actuated or caused to rise and fall, when desired, by means of a hand-lever 27. This lever 27 is pivoted between the side members of a usual form of frame 28 on the pintle 29, and its lower end is provided with an arm 30, by which it is constituted a bell-crank. This arm 30 may be connected with the cross-head 23 in any suitable manner, as by means of a short link 31, pivoted to both the arm 30 and such cross-head. The side members of the frame 28 are secured to the standards 26, which in turn are firmly bolted or otherwise secured to the beams 9 10, respectively. The frame 28 may be provided with a toothed portion or segment-rack 32, with which engages a locking dog or pawl 33, carried by the lever 27, whereby the lever may be firmly locked in position, and thus hold the brake from accidental application and to prevent its accidental release after being applied.

If desired, the inner faces of the brake-shoes may be provided with bushings, as shown, which may be replaced when worn.

By this construction it will be seen that the brake is applied by a downward pressure on the lever 27 and is released by a reverse movement; but it will nevertheless be understood that if desired the converse of this arrangement may be employed without departing from the spirit of my invention, as shown in Fig. 5—that is to say, the brake may be applied by an upward pull instead of a downward pressure on the lever 27. When this action is desired, the shoes or jaws 2 3 are made in one piece with or otherwise secured to arms or extensions 14^a, respectively, whose upper ends are pivoted directly to the links 21, the upper ends of the latter being pivoted to the cross-head 23. Thus it will be seen that by an upward pull upon the cross-head 23 the parts will act on the principle of grappling-tongs or ice-tongs and the jaws 2 3 will be brought together upon the rail with great pressure. On the other hand, when the cross-head 23 is lowered the jaws 2 3 will be released and raised out of the way.

The ends of the rail 1 may be held in alignment by means of a key 34, driven into coincident seats or slots in the abutting ends of the rails.

A brake constructed according to my invention will not only check and overcome the momentum of the car or train, but will prevent the car to which it is attached from jumping the track.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a brake for the purpose described the combination with a stationary rail, of a pair of pivoted brake shoes or jaws arranged to swing together upon the rail, two toggle levers each having one end pivoted to one of said shoes and the other end pivoted to a fixed support, a link pivoted to the joint of each of said toggle levers between its fixed end and the shoe, and a lever connected with both of said links, substantially as set forth.

2. In a brake for the purpose described the combination with a stationary rail, of a pair of pivoted brake-shoes or jaws adapted to swing together upon said rail, a toggle lever having one end pivotally connected to each of said brake-shoes or jaws, a rising and falling cross-head, links connecting said cross-head with the middle joint of each of said toggle levers, a lever and a link connecting said lever with said cross-head for raising and lowering the latter, substantially as set forth.

3. In a brake for the purpose described the combination with a stationary rail, of the bars 17 secured to the under side of the car, the pintle 8 secured to the under side of the car, brake-shoes having sleeves or boxes journaled upon said pintle 8, the links 15 having their outer ends provided with sleeves 16 and journaled upon the bars 17, a cross-head confined to a vertical movement, the links 14 pivoted to said brake-shoes and to the inner ends of the links 15, the links 21 connecting the inner ends of the links 15 with said cross-head, and means for raising and lowering said cross-head, substantially as set forth.

4. In a brake for the purpose described the combination with a stationary rail having a round or cylindrical head, of a pair of pivoted brake-shoes having concave faces adapted to swing together upon said rail and embrace said head, a toggle lever connected to each of said brake-shoes, a cross-head and links depending from said cross-head and pivoted to said toggle levers for actuating the said shoes, substantially as set forth.

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