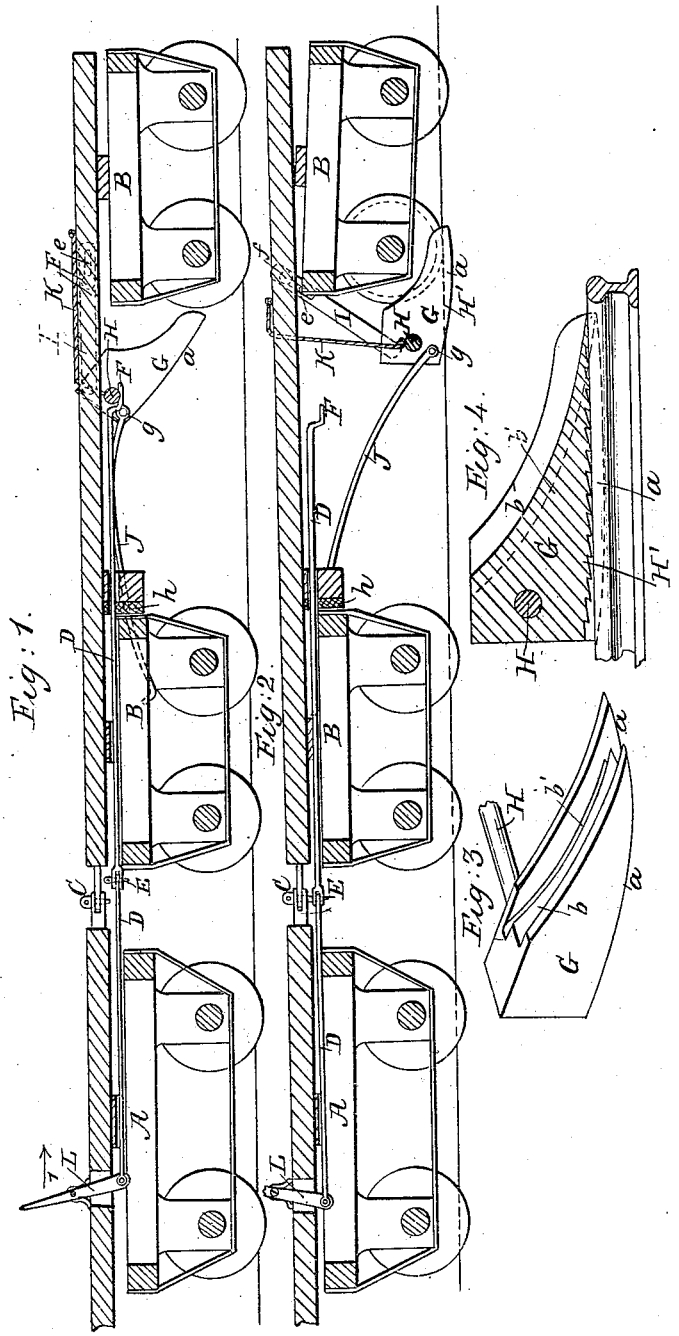
A. S. MARTIN.

Car Brake.

No. 106,847. Patented Aug. 30, 1870.



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ANTHONY S. MARTIN, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 106,847, *dated August* 30, 1870.

IMPROVEMENT IN SAFETY CAR-BRAKE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ANTHONY S. MARTIN, of Washington, in the District of Columbia, have invented a new and useful Improvement in Safety-Brakes for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a longitudinal section of the invention, as it appears out of action, it being shown on the hindmost car of a train, coupled, merely for illustration, directly to the engine-truck. In the practical use of the safety-brake, there will be several cars between the hindmost one and the engine-truck, provided with the ordinary friction shoe-brakes, and the hindmost car will also be provided with the ordinary brake, and with two pairs of the safety-brake shoes, as additional thereto.

Figure 2 is a similar section, showing the safety-brake thrown into operation.

Figure 3 is a perspective view of one of the safety shoes, and a portion of the rod which connects the shoes together in pairs.

Figure 4 is a longitudinal section of the shoe, resting longitudinally upon a rail of the track.

Similar letters of reference in the several figures indicate corresponding parts.

The nature of my invention consists in the combination of a line of jointed rods, leading from the engine-truck, or other forward portion of a train of cars, to the rear car of a train, with rail shoes which are flanged, grooved, and inclined, such shoes being arranged upon the under side of the truck-frame of the car in such a manner as to be held in suspension above the rails of the track by one of the jointed rods of the line, and to be instantaneously dropped down, at the will of the engineer, upon the rails of the track, so as to allow the wheels of the car to roll upon them, all as will be hereinafter explained.

It consists, secondly, in forming the bottom of the shoes with flanges, grooved and inclined top surface, and ratchet-toothed bottom surface, so that they correspond with the tread and flange of the wheels, and that there shall be a cutting contact between the rails and the shoes when the weight of the car comes upon the shoes, and the shoes and car are caused to slide together upon the rails.

It consists, thirdly, in the arrangement of slotted links, sliding, hinged stay-rods, and elastic cushions, whereby the shoes may be allowed to adjust themselves to a proper position for the wheels to roll upon them, and whereby, also, during said rolling of the wheels upon them, they (the shoes) are sustained with a yielding resistance, and thus liability of breakage of the shoes, and a too sudden shock when the shoes and wheels first come in contact is avoided.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawing.

In the accompanying drawing I have only shown one pair of the safety shoes on the hindmost car-truck of a train, but in practice there will be two pair of shoes, with connecting-rod, links, stay-rods, elastic cushions, rods for holding up the shoes and cords for elevating the shoes after they have been lowered upon the rails and accomplished their work.

A represents what may be regarded, for illustration, an engine-truck, and

B the truck of the hindmost car of a train of cars.

C are the ordinary coupling-links.

D, a line of rods jointed together, as at E, between the cars, there being a joint at each place where there is a coupling-link between cars.

The joints are formed, by means of eyes, on the rods, and removable pins inserted through the eyes. This line of rods may be a little to one side of the ordinary coupling-links. The section of rod which is under the floor of the last car of the train terminates in a crank or right angle, as shown at E, for a purpose presently to be described.

G is one of a pair of shoes, arranged under the hindmost car of a train, directly over the rails of the track. These shoes have flanges *a a*, extending below their bottom surface. They are also grooved, as at *b b'*, so as to correspond with the tread and flange of the car-wheels; and the bottom of this groove rises on a curvilinear incline, as shown.

On the under surface of the shoes, ratchet-teeth *d* are cut, as represented at H'.

H is a transverse bar, connecting two shoes together.

I is one of a pair of links, and

J, one of a pair of stay-rods, for connecting the shoes to the car-truck.

The links are slotted, as at *e*, at the points where they are connected to the car-frame, so as to slide on their pivotal connections *f*, when the shoes are raised or lowered.

The stay-rods, after being pivoted to the heels of shoes, as at *g*, are passed loosely through buffers on the car-frame, and also through elastic cushions *h h*, and then enlarged, so as not to become disconnected, and also so as to be capable of acting with a compression force against the elastic cushions.

K is a cord or chain, by which the shoes are lifted to a position to be suspended upon the crank or right-angled end of the last section of the line of rods, as shown in fig. 1.

L is a lever on the engine-truck, to which the line of rods for suspending and for releasing the safety shoes is connected.

This lever is to be in convenient position on the

engine, and as it is designed that the engineer shall operate the safety-shoes simultaneously with cut-off of the steam of the engine, this lever will be arranged in close relation to the cut-off of the engine.

From the foregoing description, in connection with the drawing, it will be seen that if the engineer presses the lever in the direction of the arrow 1, the crank or right-angle end of the line of rods will be withdrawn from beneath the bar H, the position it occupies in fig. 1, and thus allow the shoes to descend upon the rails.

It will also be seen that as soon as the shoes rest upon the rails, friction will be created between them and the rails by the toothed bottom surface thereof cutting into the rails, and therefore the car-wheels will ride upon the inclined top surface of shoes, the slotted links and yielding cushions of the stay-rods allowing this to take place without much of a jar, or a violent concussion being experienced.

There, of course, will be a short sliding upon and cutting away of the rails before the car is stopped, but it is believed that by this arrangement and the cutting off of the steam, and the application of oil to the rails at the points where the engine drive-wheels come in contact with them, a very quick and safe arrest of the train of cars may be effected.

In practice, it will be essential to make the coupling-links very strong, as there will be very great tensional strain brought to bear upon them, when the hind car is suddenly arrested.

For stopping the cars, under ordinary circumstances, the usual shoe-brakes will be used, and they may also be used to assist in stopping the wheels of the intermediate cars when an accident is about to occur, and thus much of the strain on the links will be obviated.

My invention is for extraordinary occasions, and as it is very important to save human life, it will not be of much consequence if a small portion of the rails is cut into and injured by the shoes in the effort to save hundreds of lives.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the flanged, grooved, and inclined shoes, hung upon the hindmost car of a train, with the line or chain of rods leading from the engine, substantially in the manner and for the purpose described.

2. The construction of the shoes with a groove, corresponding to the tread and flange of the wheels, and with roughened or cutting bottom surface, substantially as described.

3. The arrangement of the slotted links I, sliding hinged stay-rods J, cushions *h*, as described.

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