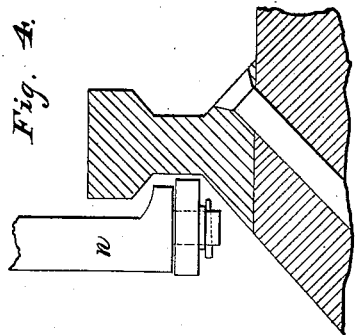
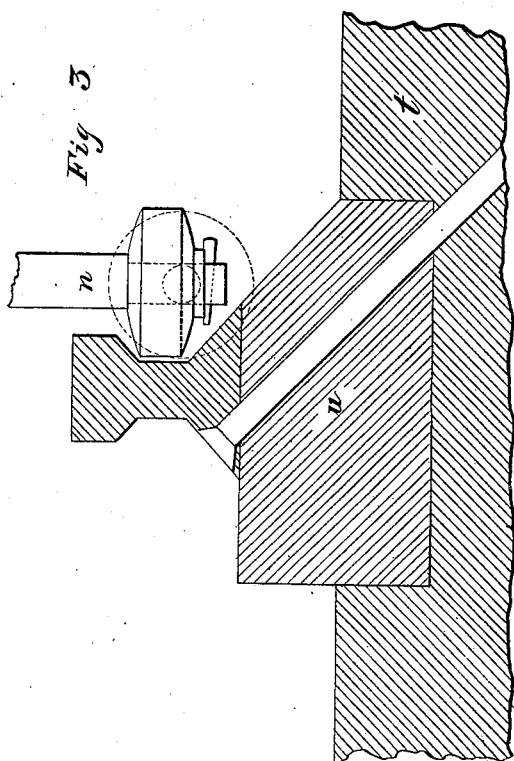
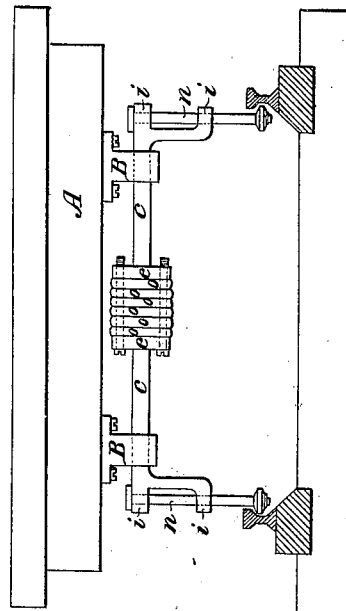


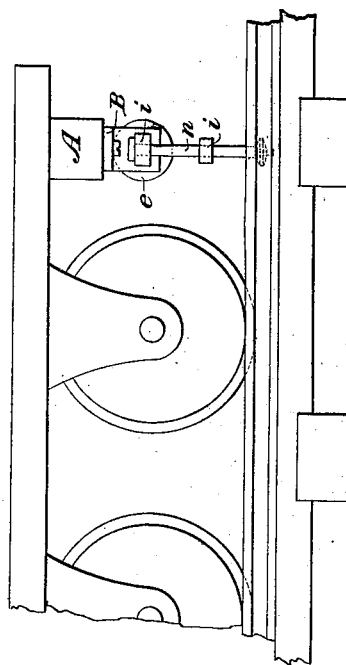
W. PAYNE.  
 APPARATUS FOR RETAINING CARS ON THE RAILS.  
 No. 7,146.                      Patented Mar. 5, 1850.



*Fig. 2.*



*Fig. 1.*



# UNITED STATES PATENT OFFICE.

WILLIAM PAYNE, OF NEW YORK, N. Y.

## APPARATUS FOR RETAINING CARS ON THE RAILS.

Specification of Letters Patent No. 7,146, dated March 5, 1850.

*To all whom it may concern:*

Be it known that I, WILLIAM PAYNE, late captain, royal engineers, in the British service, now residing in the city, county, and State of New York, have invented a new and useful Safety Apparatus to be Applied to Locomotives, Freight and other Cars on a Railroad; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure I is a front view. Fig. II is a side view. Figs. III and IV are sections in detail; and similar letters refer to similar parts in all the figures.

My invention consists in the construction of a certain apparatus to be applied to, and combined with, the trucks or cars of locomotives, tenders, freight and other carriages running upon railways, which apparatus has for its object the prevention of accidents from the said trucks and cars being thrown or dislodged from the rails by any obstacle in the way of the free passage of the burthen wheels over them.

My apparatus is of such a nature that while it permits all the various movements in the trucks and cars caused by the irregularities of the rails, such as the side oscillations and rocking motions, they are yet prevented from jumping up sufficiently to allow of the flanges of the wheels clearing the rails.

The letter A represents a part of the cross framing of a rail-way truck and is that part to which I should choose to attach my safety apparatus.

B, B, are two boxes firmly bolted or otherwise attached to the frame A in the position and manner represented.

C, C, is a heavy bar of iron composed of two pieces terminating at their inner ends in circular or other shaped flanges as at (E E) and forked in two parts at their outer ends as seen at (*i, i*). In each of the forks of the bar there are boxes (*i, i*) fitted to receive vertical shafts as seen at (*n, n*). These shafts are finished at their tops with heads or flanges so that they may rest on the bar C as represented, the lower ends terminating in small friction wheels held in place by nuts or linch pins. The length of (*n*) is such that the circumference of the wheels on them will be directly in range

with the middle of the rail so that whenever they come in contact they would roll on the space between the upper and lower flanges of the same in the manner shown in the drawings. I have certain means of adjusting the exact distance of these rollers apart so as to keep them always in their proper positions to take hold of the rails; this is effected by the division in the bar C at the flanges (E, E,) between these I introduce a spring of some suitable material which will tend to force the two pieces of which the bar C is composed apart. In the drawing this spring is represented at the letter (*o*) and is composed of disks or sheets of india rubber laid together and compressed between (E E) by screwbolts as shown; by unscrewing the bolts the flanges (E E) are pressed apart and thus the wheels on (*n*) are brought to their proper position near the rails as described. The bar C, C, has free longitudinal play in its boxes B B; it is also made square at the boxes to keep it from rotating this longitudinal play of C is to allow the truck to oscillate from side to side to accommodate them to the irregularities of the rails; the bar C C always being in the track of the rails by the wheels on (*n n*). The rocking motions are permitted by the play of the rollers (*n*) as far as the space between the two flanges of the rail but the up and down motions are performed by the boxes (*i i*) sliding over the shaft (*n n*) whenever the springs of the truck are compressed together; the shaft (*n n*) not having themselves further play than is allowed by the flanges on the rails as before mentioned. It will now be seen that by reason of the wheels playing closely to the side of the rail between its two flanges it will be impossible for the truck to be thrown up sufficiently to allow the flanges of the burthen wheels to clear the top of the rails as any upward motion is at once arrested by the rim of the wheel catching in the rail and thus holding down the frame of the truck as clearly seen. A safety apparatus thus constructed may be placed on each side of the truck, or one at each end of the car only as may be thought sufficient for strength to resist the most severe collision with obstacles opposing the onward passage of the same.

In Fig. 4 is a view showing a slight modification of the shaft (*n*), in this it is seen

to terminate in a hook above the wheel. This form is substituted when the strength of the latter is not found sufficient, especially for the locomotives and freight trucks; this hook it will be seen will take hold of the upper flange of the wheel whenever the truck is thrown up, while the wheel projects sufficiently to prevent friction when the side oscillations of the truck bring them in contact with the rails. In the drawings I show a mode of constructing railroads differing slightly from the present. Fig. 3 is an enlarged view in which I show the cross trees (*t*) placed upon the ground and a longitudinal wooden rail (*u*) to support the iron ones above; by placing the iron rail on this, the spikes to hold it may be driven down in the manner shown, and thus resist the tendency of the burthen wheels to press them apart; it will also raise the rail

so as to keep it much clearer of snow and pools of water in time of heavy rains.

What I claim as my invention and desire to secure by Letters Patent is—

Combining the trucks or other suitable parts of locomotives, freight and passenger cars with the rails by means of two bars, one vertical and one horizontal, connected in such way that oscillations and other vibratory movements of said cars will be permitted without disengaging the hooks or rollers attached to the lower ends of the vertical bars, from the flange of the rails the whole being arranged substantially in the manner described herein.

W. PAYNE.

Witnesses:

S. H. MAYNARD,  
T. H. WOOD.