No. 863,558. PATENTED AUG. 13, 1907.

J. A. SHIRES.

MEANS TO PREVENT THE SPREADING OF RAILROAD RAILS.

APPLICATION FILED OCT. 8, 1906.

2 SHEETS—SHEET 1.

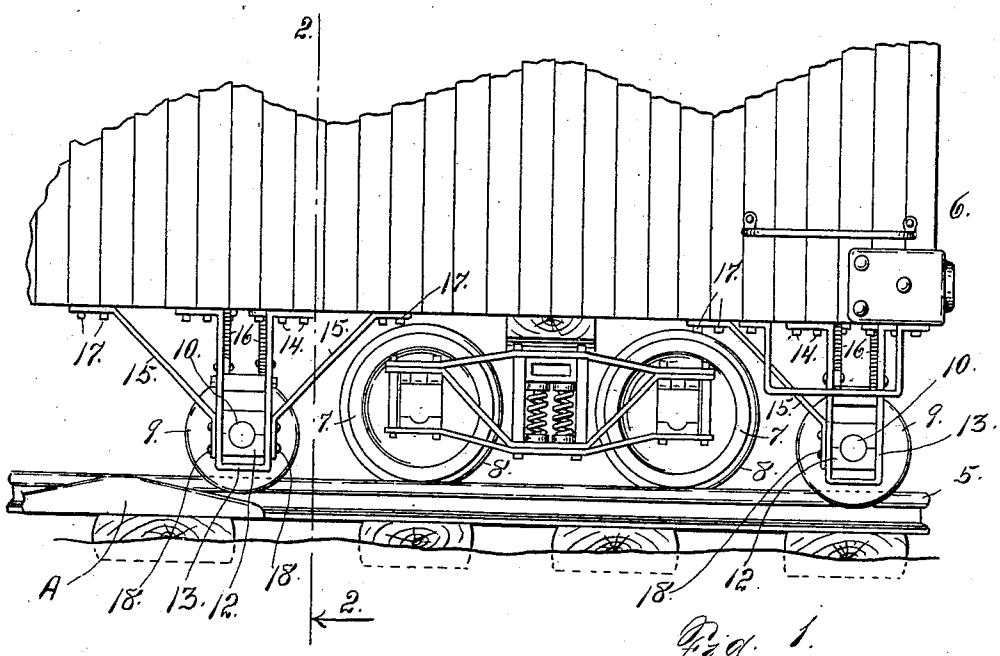


Fig. 1.

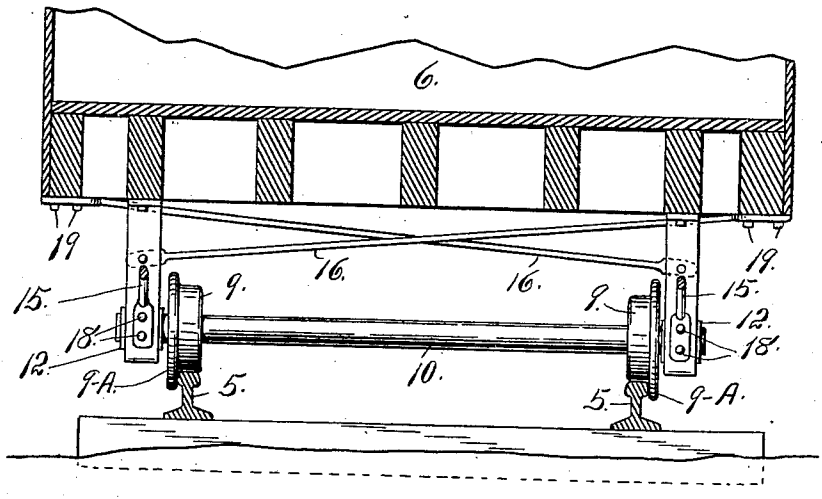


Fig. 2.

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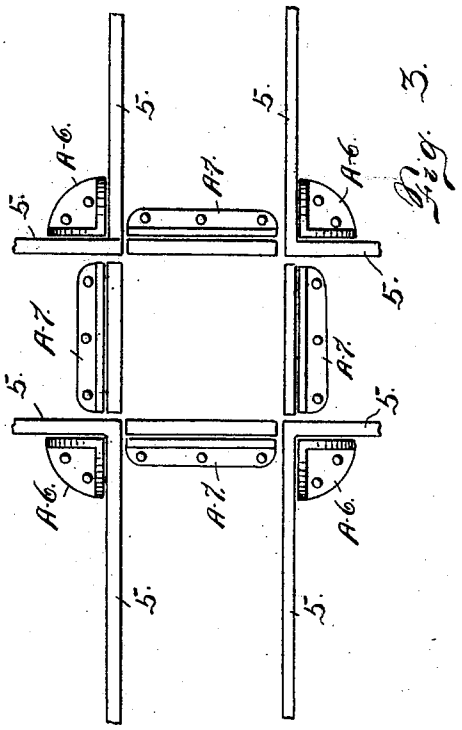


Fig. 3.

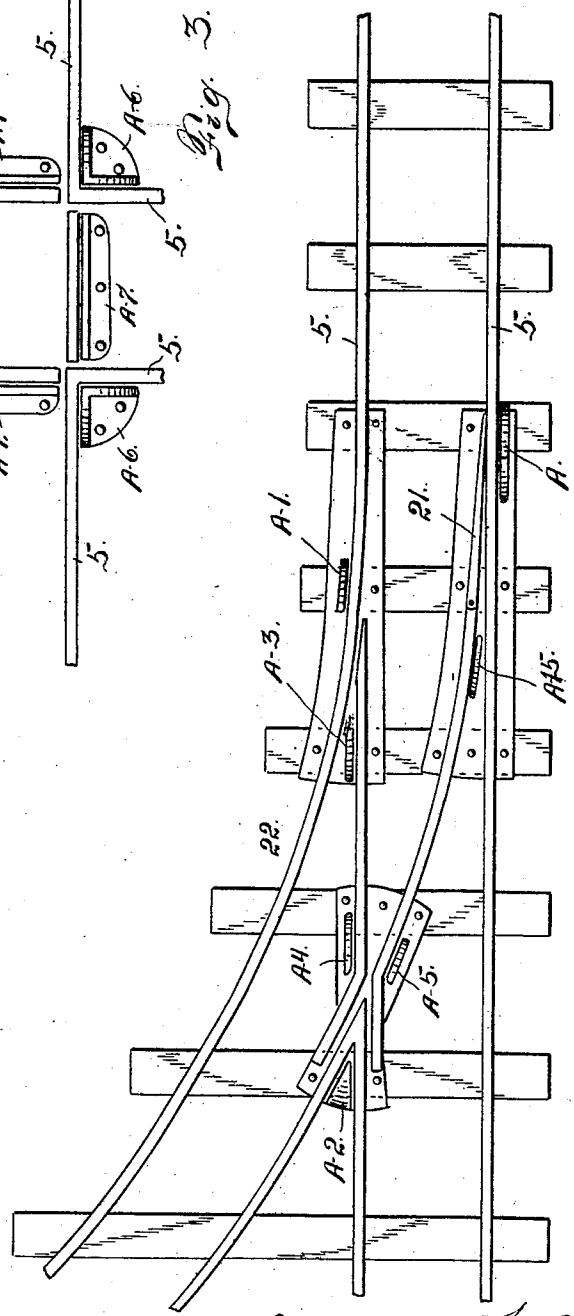


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MEANS TO PREVENT THE SPREADING OF RAILROAD-RAILS.

No. 863,558. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed October 8, 1906. Serial No. 337,956.

To all whom it may concern:

Be it known that I, JOSEPH A. SHIRES, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Means to Prevent the Spreading of Railroad-Rails; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to means to prevent the spreading of railroad rails, my object being to prevent accidents resulting from this cause.

My improved construction includes the equipping of the cars and locomotives with extra wheels having flanges engaging the rails on the outside or on the opposite sides of the regular wheels of the car. These wheels are mounted on an axle which is journaled in bearings vertically slidable in boxes or hangers suitably connected with the car. These outer flanges of the auxiliary wheels prevent the spreading or separation of the rails and if the rails are already spread they have a tendency to draw them into their natural position and prevent the derailing of the train.

Provision is also made whereby the track is equipped with projections or risers in order to allow the auxiliary wheels to pass over the rails at switches or crossings, without obstruction or interference.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a fragmentary side elevation of a railway car equipped with my improvements. Fig. 2 is a fragmentary end view of a car equipped with my improvements, the car being shown partly in section. Fig. 3 is a plan view illustrating a crossing provided with risers for engagement of the auxiliary wheels of the car. Fig. 4 is a top plan view of a railway track showing a switch, the track being equipped with my improved risers to enable the auxiliary wheels to pass over the rails.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the rails of the track, and 6 a car provided with the usual wheels 7 having the inner flanges 8.

As shown in the drawing I prefer that each car shall be equipped with a set of auxiliary wheels both in front and rear of the ordinary wheels or truck. Let the numeral 9 designate these auxiliary wheels, a pair of which are mounted on an axle 10, the extremities of the axles being journaled in boxes 12 slidable in stirrup-shaped hangers 13 bolted to the bottom of the car as shown at 14. These hangers are supported by braces 15 to prevent longitudinal movement; and by tie rods 16 to prevent transverse movement. The braces 15 are each secured to the car at one extremity by bolts 17, and at the opposite extremity to the hangers as shown at 18. Each tie rod is secured to one extremity of one of the hangers while its opposite extremity is secured to the car by bolts 19. These tie rods cross each other in the center of the car and hold the hangers against outward movement as will be readily understood.

The wheels 9 are each provided with flanges 9A which engage the rails 5 on the outside or on the side opposite from the engagement of the flanges 8 of the regular wheels. The auxiliary wheels are fast on their axles and by virtue of their outer flanges, prevent the spreading of the rails and also have a tendency to draw the spread rails into position to prevent accidents.

The axles 10 together with the wheels 9 have a considerable range of vertical movement within the stirrup-shaped hangers 13. Hence these auxiliary wheels will maintain their position on the track by gravity even if the car together with the regular wheels should be raised a short distance from the track. The boxes in which the axles 10 of the auxiliary wheels are journaled, are normally some distance above the lower extremities of the hangers 13, so that in case the car together with the ordinary wheels should be raised from the track sufficiently to derail the car, the auxiliary wheels will move downwardly and maintain their position on the track and thus have a tendency to prevent accidents due to ordinary causes independently of the spreading of the rails.

In order that the auxiliary wheels may pass over the rails at switches, the track is equipped with blocks or risers A having inclined faces which engage the flanges of the auxiliary wheels and cause the latter to move upwardly and pass over the tops of the rails and thus prevent any obstruction at switches or crossings. Certain of these risers must have faces sloping downwardly in opposite directions from the top of the riser which should be on a level or approximately on a level with the top of the rail (see Fig. 1). By having the double inclined faces, the risers present no obstruction to the auxiliary wheels when trains are going in either direction.

Referring more particularly to Fig. 4 of the drawing, and assuming that the train is traveling toward the left and that the switch point 21 is in position to cause the train to take the curve or side track 22, the outer flange of one of the auxiliary wheels will pass up the inclined face of the riser A adjacent the rail engaged by the switch tongue, and pass over the rail, as the flanges of the regular wheels engage the switch tongue on the inside and cause the train to take the curve. Thus it will be understood that the auxiliary wheels

do not interfere with the regular use of the train. Assuming that the switch tongue is thrown to cause a train moving toward the left to take the straight track, the riser A′ on the opposite side of the track from the riser A, will engage the flange of an auxiliary wheel and cause the said flange to ride over the adjacent rail of the curve, while the inner flanges of the regular wheels cause the train to keep the straight track. When the train is on the straight track and approaching the switch but moving in a direction toward the right, the flanges of the auxiliary wheels will engage the riser A^2, thus allowing them to pass over one rail of the curve and keep the straight track while the riser A^3 enables the flanges 9A to pass over the other rail of the curve. While moving toward the left on the straight track, the riser A^4 acts to cause the auxiliary wheels to pass over one rail of the curve; while if the train is taking the curve and running toward the left, the riser A^5 will act to cause the auxiliary wheels on one side to pass over the frog construction of the track without difficulty. It will thus be understood that by a proper arrangement of these risers no difficulty will be experienced in using the auxiliary wheels provided with the outer or anti-spread flanges.

At crossings, the track is equipped as shown in Fig. 3. There is a riser A^6 on the outside of each pair of intersecting rails 5; while on the outside of each rail and between the rails extending at right angles thereto, a riser A^7 is located, to prevent the auxiliary wheels from moving downwardly after they have been guided upwardly by the risers A^6.

From the foregoing description the use and operation of my improved construction will be readily understood.

It may be stated that as the train when moving toward the right approaches the straight track from the curve, the riser A^{15} on the switch point side of the track, will cause the auxiliary wheels on the corresponding side of the cars to move upwardly and pass over the adjacent rail 5 in order that the auxiliary wheels may assume their proper position on the rails of the straight track.

Having thus described my invention, what I claim is:

1. The combination with a car provided with the ordinary truck, of a pair of auxiliary wheels mounted on the car and provided with flanges engaging both rails on their outer sides to prevent the rails from spreading, and vertically movable boxes in which the wheels are journaled, the said auxiliary wheels being free to rise and fall independently of the car body and truck.

2. The combination with a railway car provided with the usual truck, of means mounted on the car to prevent the rails from spreading, comprising an axle, a pair of wheels fast thereon and provided with flanges adapted to engage the rails on the outside, and vertically movable boxes in which the extremities of the axle are journaled, whereby the said wheels are allowed to move vertically independently of the car body.

3. The combination with a car, of depending stirrup-shaped boxes or supports, journal bearings vertically movable in said supports, an axle having its extremities journaled in the said bearings, and auxiliary wheels fast on the axle and provided with flanges engaging the rails on the outside, the said auxiliary wheels being free to move vertically independently of the car body.

4. The combination with a car or locomotive, of a pair of wheels mounted thereon to permit vertical movement independently of the car or locomotive and provided with flanges adapted to engage the rails on the outside, and risers suitably located along the track to engage said flanges to allow the said wheels to pass over the rails and other obstructions incident to switches and side tracks.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH A. SHIRES.

Witnesses:
DENA NELSON,
A. J. O'BRIEN.