O. B. GRANT.

RERAILER.

APPLICATION FILED MAY 17, 1909.

938,845. Patented Nov. 2, 1909.

Fig. 1.

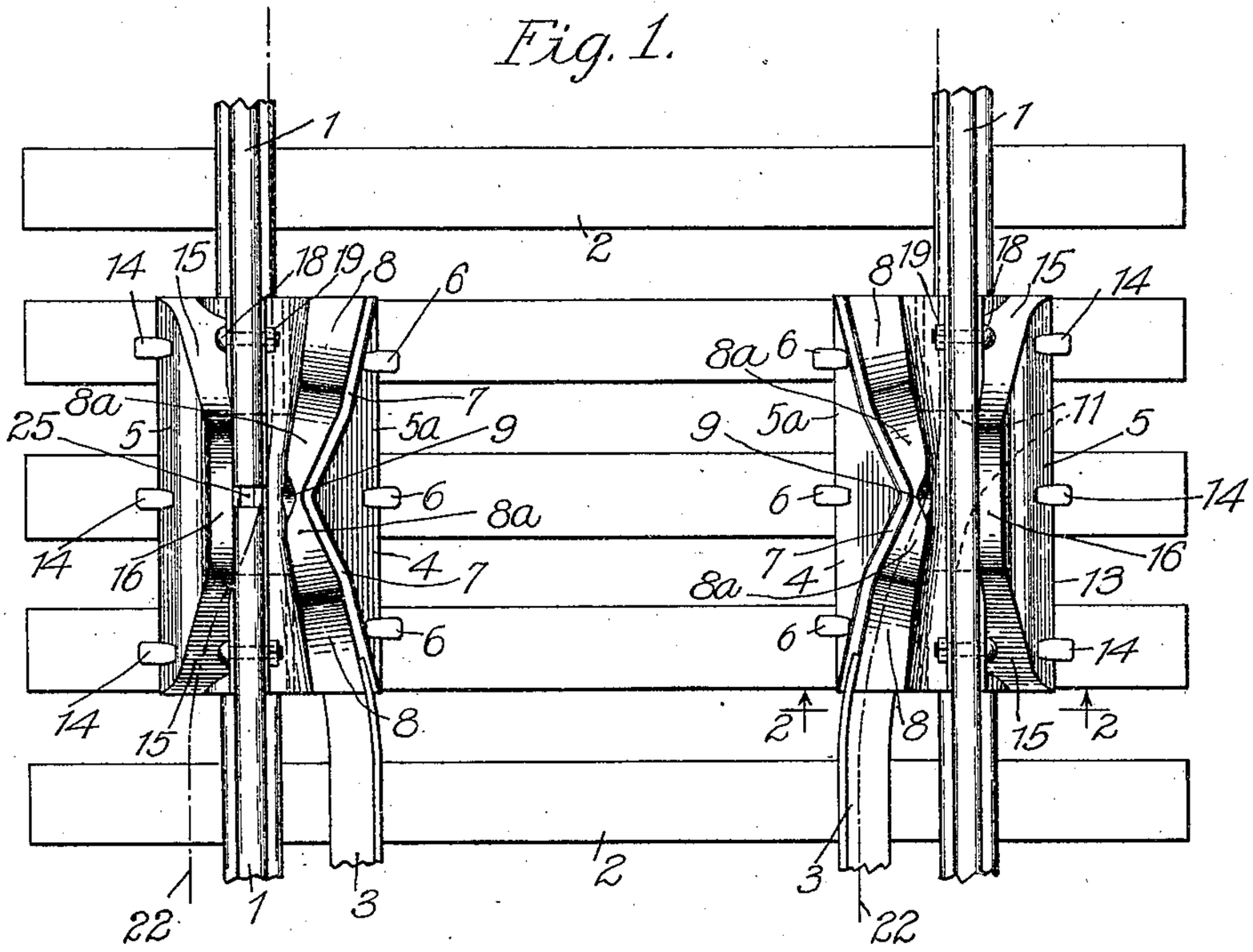
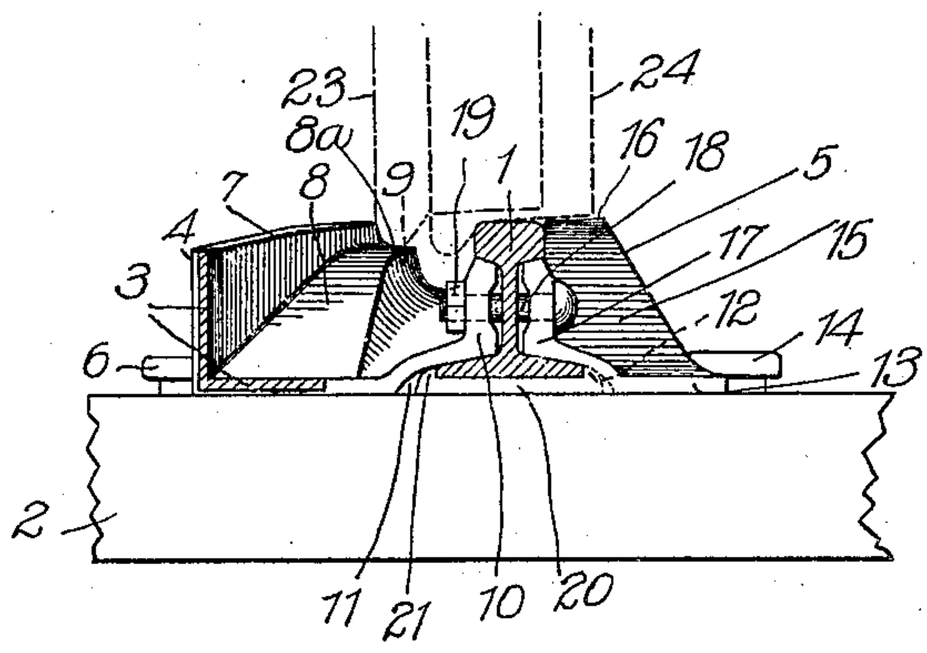


Fig. 2.



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UNITED STATES PATENT OFFICE.

OSCAR B. GRANT, OF DAVENPORT, IOWA.

RERAILER.

938,845. Specification of Letters Patent. Patented Nov. 2, 1909.

Application filed May 17, 1909. Serial No. 496,607.

To all whom it may concern:

Be it known that I, OSCAR B. GRANT, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented a certain new and useful Improvement in Rerailers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a rerailer. It has particular reference to a special form of rerailing device which is adapted to be permanently connected with a railroad track.

In many cases where trains run at a comparatively slow speed, for example seven to eight miles an hour, it often happens that one of the trucks and possibly a whole car becomes derailed. According to previous practice it has been necessary to use special portable apparatus to return a derailed car to the track, this involving considerable loss of time and consequent possible interruption of traffic. Moreover none of the previous devices have served to return the derailed car to the track while the train was still in motion, and for this reason have not acted to prevent wrecks, but have merely been adapted to aid in returning a derailed, and possibly wrecked car to the track. It is my aim, in such cases, to provide a rerailing device permanently located at such point or points as may be desired, so as to automatically replace the wheels on their rails while the train is still in motion and thus prevent such derailed wheels continuing off the track until a wreck has resulted.

My invention is particularly adapted for use in connection with bridge spans and other places where trains generally run at a low rate of speed.

My rerailing devices are used on both rails of the track, being placed directly opposite each other. These devices are adapted to coöperate with angle irons which act as guard rails, these angle irons running parallel to the rails. A single angle iron is used in connection with each rail and with respect to the pair of rails forming the track these angle irons are placed on opposite sides of the individual rails.

Each of my devices consists of two members, one member placed on each side of the rail. The member which is on the same side of the rail on which the guard rail is placed has a vertical retaining wall which is substantially continuous with the guard rail and is directed obliquely toward the main rail. Between this vertical wall and the rail is an incline, by means of which the car wheel rolling on its flange, is elevated so that the tread of the wheel is somewhat higher than the rail, being guided to the rail by the lateral retaining wall, as will be explained in detail hereafter. The second member of my device, which is placed on the side of the rail opposite to the guard rail, has an incline similar to that of the first member but has no vertical retaining wall.

When the truck is derailed it is evident that the car wheels on one side of the truck will follow the angle iron guard rail to the rerailer when it will be guided by the retaining wall of the first member of my device, whereas those on the other side will be elevated by means of the second member, no retaining wall being necessary in the latter case.

My rerailing devices may be placed on the track at each rail joint or at intervals of 100, 200, 300 or more feet.

A second object of my invention consists in providing an expansion joint between the rails. This is accomplished by having the second member above mentioned of my device so constructed that the top between the inclines is substantially in the same or a slightly higher horizontal plane than the top of the rail and flat or slightly curved in a longitudinal direction for a distance at least equal to that between the ends of the rails, the outer edge being slightly raised and formed to fit the tread of the wheel. It is evident that by this construction, if the ends of the rails are placed three or four inches apart, the body or tread of the car wheel ordinarily occupying a position outside of and overhanging the rail, will run on the portion just mentioned of the second member. By this method of construction, the effect will be the same as that obtained if a jointless rail were used.

These and other advantages of my device will become clear by reference to the drawings in which—

Figure 1 is a plan view showing a pair of rerailers in position on the track, and Fig. 2 is a section on the line 2—2 of Fig. 1.

The car rails 1 are suitably supported on ties 2. In connection with each rail an angle

iron 3 is provided, this angle iron being parallel to the rail and preferably placed on the inner side. The rerailer consists of two members 4 and 5 which are placed on opposite sides of the rail, the member 4 always being on the same side as that occupied by the angle iron 3 which acts as a guard rail. The member 4 consists of a base 5ª which rests on the ties and is suitably held in position by the spikes 6. This member 4 is provided with a vertical wall 7 which is substantially continuous with the vertical portion of the angle iron 3. The wall 7 is directed obliquely from the ends of the member 4, toward the rail thereby forming an angle, the apex of which forms the nearest point of the wall to the rail.

Between the wall 7 and the rail 1 are inclines 8 which slope upwardly from the ends of the member 4 to a point about half way to the apex of the retaining wall 7. At the center or opposite the point of apex of the retaining wall, a notch 9 is provided the object of which will be explained hereafter.

Projecting from the base 5ª of the member 4 is a portion 10 which occupies a position directly over the flange of the rail 1 and then passes upwardly to the under side of the head of the rail, acting as a rail joint fastening.

From the member 4 a projection 11 is provided which passes under the flange of the rail 1. This projection is provided with a detent 12 in order to lock the member against lateral displacement from the rail.

The second member 5 which is placed on the side of the rail opposite to that occupied by the member 4 consists of a base 13 which rests on the ties 2 and is held in position by the spikes 14. The member 5 is provided with inclines 15 which slope upwardly from the ends of the member. When these inclines reach a plane which is substantially in the same horizontal plane as that of the top of the rail 1 the member is provided with a flat or nearly flat surface 16, with the outer edge slightly higher to conform to the tread of the wheel that extends out over the head of the rail, the purpose of which will be described hereafter.

The member 5 is provided with a portion 17 which is similar to portion 10 of member 4. In order to give greater rigidity to the rerailer, the two members 4 and 5 may be bolted together by means of bolts 18 provided with nuts 19, these bolts passing through suitable holes in the portions 10 and 17 of the members 4 and 5 respectively and through corresponding slots in the web of the rail 1. The member 5 is also provided with projecting portions 20 which pass under the flange of the rail 1, these portions 20 provided with detents 21. As is shown in Fig. 1, the projections 20 of member 5 alternate with the projection 11 of member 4. It is evident that any suitable number of such projections may be used and that there may be any suitable distribution of them between the two members without departing from the spirit of my invention.

The operation of my device will now be clearly understood. We will assume that a truck is derailed to the left as represented in Fig. 1. In being returned to the rails the flanges of the car wheels will travel over a path as indicated by the dot and dash line 22. The car wheel on the right is held from lateral displacement by the vertical portion of the angle iron 3. As the car moves forward the right hand wheel is brought onto the incline 8 of the member 4 and by means of the vertical wall 7 is guided inwardly toward the rail and at the same time elevated toward the surface of the rail so that just before the side of the rail reaches the side of the head of the rail the tread of the wheel is raised slightly above the top of the rail as shown by the dot-and-dash line of Fig. 2, the tread of the wheel then passing along obliquely over the head of the rail while the flange of the wheel travels along the flat surface 8ª to the apex of wall 7. When the flange reaches the notch 9 the tread of the wheel is projecting over the head of the rail 1. As the wheel moves still farther it drops into the notch and the tread of the wheel falls to its place on the head of the rail and the operation of returning the derailed wheel is thereby completed. In Fig. 2 the dotted line 24 represents the car wheel in its normal position after it has been returned to the rail. While the right hand wheel of any given pair is thus being returned to the rail, the left hand wheel is brought to the incline 15 of the member 5. By means of the retaining wall 7 of the member 4, the flange of the left hand wheel is caused to move in a path parallel to that of the right hand wheel. After being elevated to the height of the top of the rail 1, the flange of the left hand wheel is drawn across the rail 1 and is then finally returned to the rail. It is evident that in order to carry out this rerailing operation successfully the incline 15 of the member 5 must reach a height equal to that of the rail at the point which the retaining wall 7 brings the right hand wheel into such position that the flange of the left hand wheel is brought to the left hand edge of the head of the rail 1.

As shown in the case of the left hand rail 1 represented in Fig. 1, my device also enables use to be made of an expansion joint. A suitable space 25 is shown between the ends of the rails but inasmuch as the surface portion 16 between inclines 15—15 is an irregular curve slightly higher at the center, so that the wheel will be received and discharged without shock. The surface 16 is shaped laterally to conform to the shape of

that portion of the tread of the wheel which projects laterally beyond the head of the rail, the wheel thereby being carried from one rail to another without preceptible shock. The effect is practically the same as using a continuous rail. This condition is shown in Fig. 2 where it is evident that if the rail 1 were removed the wheel would be supported by the member 5. In case the two members are bolted together, the bolts pass through holes drilled in the members these holes being opposite a slot in the web of the rail. By this construction it is evident that the rails can be moved longitudinally in respect to the two members. This form of expansion joint is particularly useful on bridges provided with draw spans. In this case it is advisable to suitably anchor the rails at or near the center of the span and then use my rerailers to provide expansion joints near the ends of the span as for example at the second rail joint. At the same time my devices act as rerailing means in case of derailment. Similarly on the adjoining fixed span with which the draw span coöperates it is advisable to similarly anchor the rails near the center of the span and then provide for expansion joints with my devices near the ends of the span and so on with each succeeding span. In this way the movement of the rail at the end of the draw span will be equal only to the expansion and contraction occurring in the short distance between the point where the devices are placed and this can be provided for in the rail joint nearest the end of the draw span.

This combined rerailer and expansion joint can be placed at each rail joint but I prefer to place them farther apart, and in doing so, to calculate the amount of expansion to provide for and allow that amount between the ends of rails at the expansion joint or joints; I then place the ends of the intervening rails close together and bolt them tight, making them one continuous rail as nearly as possible. The rails midway between the expansion joints are anchored.

From the above description it is clear that my invention provides means for automatically returning derailed wheels, trucks or cars to the rails and also provides means by which difficulties owing to expansion and contraction of rails may be adequately overcome.

Many slight changes could be made from the exact form of construction which I have shown without departing from the spirit of my invention.

What I desire to claim by United States Letters Patent is:

1. In combination with a car rail and its supporting ties, a guard rail parallel with said car rail, and a rerailer adapted to cooperate with said guard rail, said rerailer consisting of a vertical retaining wall and an incline sloping upwardly and toward said rail, said incline being thereby adapted to return a derailed car wheel to said rail.

2. In combination with a car rail and its supporting ties, a guard rail parallel to said car rail, and a rerailer adapted to coöperate with said guard rail, said rerailer consisting of a vertical retaining wall substantially continuous with said guard rail and directed inwardly toward said car rail, and an incline sloping upwardly and between said retaining wall and said rail, said device being thereby adapted to return a derailed car wheel to said car rail.

3. In combination with a car rail, a rerailer consisting of a supporting base, a vertical retaining wall in the form of an angle with its apex toward said rail, inclines sloping upwardly from the ends of said wall toward said apex, a projecting portion for said rerailer, said portion extending under the head and over the flange of the rail, an extension passing under the flange of said rail, said extension being integral with said rerailer, and a detent on said extension, said detent serving to retain said rerailer against lateral displacement from said rail.

4. In combination with a car rail, a rerailer consisting of two members on opposite sides of the rail, the first member having a vertical retaining wall and an incline adapted to guide and return a derailed wheel to the rail and the second member having an incline the highest portion of which is substantially on a level with the upper surface of the head of the rail, said second member thereby being adapted to elevate the derailed wheel to the rail, and projections from each member extending beneath said rail.

5. In combination with a car rail, a rerailer consisting of two members on opposite sides of the rail, the first member having a vertical retaining wall and an incline adapted to guide and return a derailed wheel to the rail, the second member having an incline the highest portion of which is substantially on a level with the upper surface of the head of the rail, said second member being thereby adapted to elevate the derailed wheel to the rail, projections from each member extending beneath said rail, and detents on said projections, said detents being adapted to retain said members against lateral displacement.

6. In a rerailing system, a pair of car rails, a guide rail parallel to each car rail, said guide rails on opposite sides of the car rails with which they are associated, and a pair of rerailing devices, said devices permanently placed in connection with said rails and opposite each other and adapted to coöperate with each other and with said guide rails, each of said devices consisting of a vertical retaining wall and an incline sloping upwardly and toward said rail, said in-

cline thereby being adapted to return a derailed car wheel to said rail.

7. In a rerailing system, a pair of car rails, a guide rail parallel to each car rail, said guide rails on opposite sides of the car rails with which they are associated and a pair of rerailing devices, said devices permanently placed in connection with said rails and opposite each other, and adapted to coöperate with said guide rails, each of said devices consisting of a vertical retaining wall substantially continuous with said guard rail and directed inwardly toward said car rail, and an incline sloping upwardly and between said retaining wall and said car rail, said device thereby being adapted to return a derailed car wheel to said rail.

8. In a rerailing system, a pair of car rails, a guide rail parallel to each car rail, and a pair of rerailing devices, said devices permanently placed in connection with said rails and opposite each other, and adapted to coöperate with said guide rails, one of said devices having a vertical retaining wall substantially continuous with the guard rail and directed inwardly toward its associated car rail, and an incline sloping upwardly and between said retaining wall and said car rail, and the device associated with the opposite rail having an incline sloping upwardly to substantially the same horizontal plane as the top of said car rail, said device being adapted to coöperate in returning to the rails a pair of derailed car wheels.

9. In combination with a pair of car rails, a guard rail parallel to each of said rails, a rerailer associated with each of said rails, said rerailers being placed opposite to each other, each rerailer consisting of two members on opposite sides of the rail, the corresponding members of said rerailers being on opposite sides of their respective rails, the first member having a vertical retaining wall adapted to coöperate with said guard rail, and an incline adapted to guide and return a derailed wheel to the rail, and the second member having an incline the highest portion of which is substantially on a level with the upper surface of the head of the rail, said first member of one device and said second member of the opposite device thereby being adapted to coöperate in returning to said rails, a pair, or pairs, of derailed car wheels.

10. In a rerailing system, a pair of car rails, and a pair of rerailing devices, said devices permanently placed in connection with said rails and opposite each other, each of said devices consisting of a supporting base, a vertical retaining wall in the form of an angle with its apex toward said rail and an incline between said wall and said rail, said incline sloping upwardly from the ends of said wall toward said apex.

11. In a rerailing system, a pair of car rails, a guard rail parallel to and on the inner side of each rail, a rerailing device permanently associated with each of said rails said devices placed opposite each other, each device consisting of two members one of said members having a vertical retaining wall directed obliquely toward said rail and substantially continuous with said guard rail and an upward incline between said wall and said rail, and the second of said members having an incline extending to the same or a higher horizontal plane as the top of said rail said incline being adapted to elevate a derailed car wheel to said rail.

12. In combination with a pair of car rails longitudinally associated with each other, a device associated with the joint between said rails, said device consisting of a supporting base adapted to rest on the ties, and a vertical portion the highest part of which is substantially in the same horizontal plane as the upper surface of the said rails, said device being thereby adapted to support a car wheel passing over the joint between the two said rails.

13. In combination with a pair of car rails longitudinally associated with each other, a device associated with the joint between said rails, said device consisting of a supporting base adapted to rest on the ties, and a vertical portion the highest part of which is substantially in the same horizontal plane as the upper surface of the said rails, said device being thereby adapted to support a car wheel passing over the joint between the two said rails, and means for attaching said device to said rails to allow longitudinal movement of said rails with respect to said device.

14. In a combination joint between car rails a device supported on the ties associated with said rails, said device having a vertical portion extending to substantially the same horizontal plane as the surface of said rails the upper surface of said vertical member being slightly curved longitudinally and laterally extending in a slightly upward direction from the edge of said surface toward said rails to the edge away from said rails, said device being thereby adapted to support that portion of the tread of a car wheel which overhangs the car rail when said wheel passes from one to the other of said rails.

In witness whereof, I hereunto subscribe my name this 5th day of May, 1909.

OSCAR B. GRANT.

Witnesses:
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