

C. L. KRISTOFFERSON.
RAIL JOINT.
APPLICATION FILED JULY 26, 1910.

1,009,250.

Patented Nov. 21, 1911.

Fig. 1.

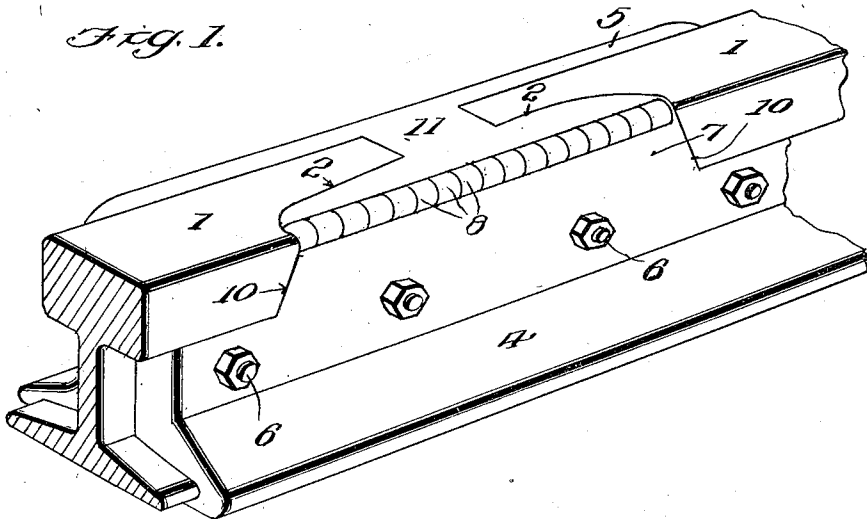


Fig. 2.

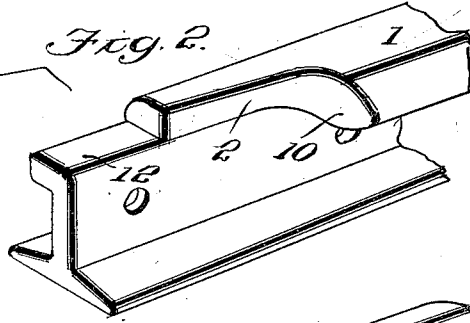
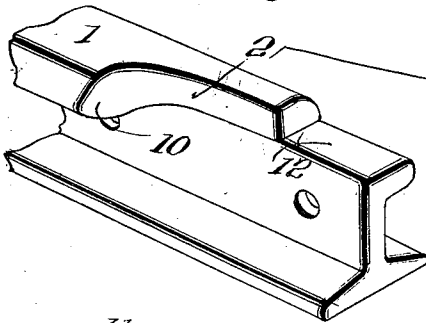


Fig. 3.

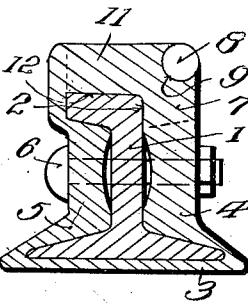
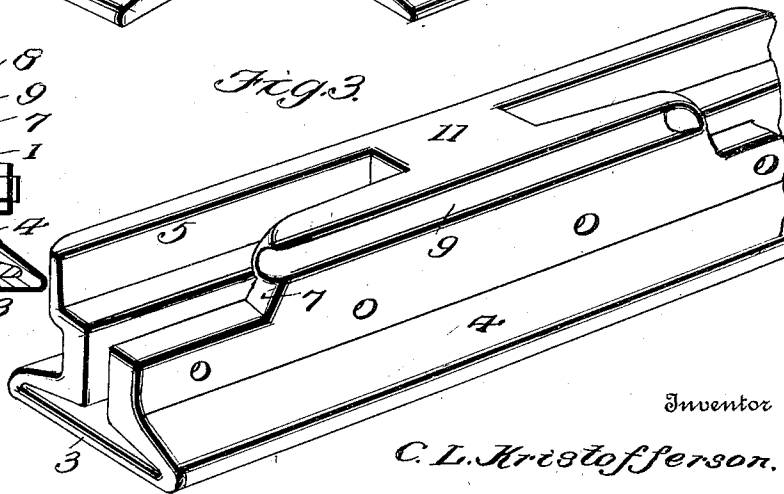


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

1,009,250.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES L. KRISTOFFERSON, a citizen of the United States, residing at Spearfish, in the county of Lawrence and State of South Dakota, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

The present invention comprehends certain new and useful improvements in rail joints, and the invention has for its object an improved device of this character having a series of anti-friction bearings which are located at the tread surface of the rail and extend across the joint between the meeting ends of the companion rail sections so as to provide a smooth joint and effectually eliminate the vibration and noise usually caused by the wheels of the rolling stock passing over the joint, the anti-friction bearings serving to relieve the ends of the rail sections from wear and thus materially increase the life of the track.

A further object of the invention is a rail joint of this character in which the meeting ends of the companion rail sections are fitted in and supported by a chair including a splice bar that is extended upwardly flush with the tread surface of the rail and is received in seating recesses provided on one side of the meeting ends of the rail sections, the said splice bar being formed in its upper edge with a groove in which the anti-friction bearings are removably accommodated.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists essentially in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:—

Figure 1 is a sectional perspective view of the rail joint constructed in accordance with my invention; Fig. 2 is a detail perspective view showing the meeting ends of the rail sections in juxtaposition; Fig. 3 is a detail perspective view of the chair detached; and, Fig. 4 is a transverse section of the joint.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawing, the numeral 1 designates a pair of companion rail sections which are of the usual form, and comprise heads, webs and base flanges. At the meeting ends of the rail sections, the overhanging portions of the heads are cut away on one side of the rail, preferably the inner side of the rail, to form seating recesses 2. By virtue of these seating recesses the ends of the heads are tapered or reduced gradually on one side flush with the adjacent side face web of the rail.

The meeting ends of the rail sections are fitted in and supported by a chair consisting of a base plate 3 and splice bars 4 and 5 that conform to the contour of and lie snugly against the opposite sides of the rail sections. The chair is of any suitable length so as to support the rail sections for a considerable distance on both sides of the joint, and thus effectually maintain the said meeting ends in alinement against both horizontal and vertical displacement. A plurality of bolts 6 are preferably passed transversely through the chair for the purpose of securing the meeting ends of the rail sections firmly in place therein. The opposite end portions of the splice bar 4 extend longitudinally beyond the seating recesses 2 and fit under the adjacent overhanging portions of the heads of the respective rail sections, while the intermediate portion of this splice bar is extended substantially vertically upwardly, as indicated at 7, flush with the tread surface of the rail and is received in and conforms to the contour of the recesses 2. The other splice bar 5 is offset to fit against the adjacent side face of the heads of the rail sections and is arranged substantially flush with the tread surface thereof throughout its entire length. The offset portion also provides a shoulder which supports the ends of the heads of the rail sections on the opposite side of the rail from the seating recesses 2.

The essential feature of the present invention resides in the provision of a series of anti-friction bearings 8 which are arranged in a longitudinal row and are preferably in the form of ball bearings. The bearings are accommodated in a longitudinal concave groove or channel 9 which is formed along the upper edge of the extended portion 7 of the fish plate 4 and is disposed in alinement with the inner side edge of the tread surface of the rail. The groove is

curved transversely so as to cause the bearings to fit snugly therein, the entrance or mouth of the groove being contracted and being of less width than the diameter of the ball bearings in order to retain them in the groove against upward displacement. The rounded surfaces of the ball bearings project upwardly through the entrance of the groove and beyond the surface of the rail and are arranged to engage with and support the wheels of the rolling stock as they pass over the joint.

The walls of the seating recesses 2 are preferably undercut at the opposite ends of the recesses, as indicated at 10, whereby to bring the edges of the rails close to the extreme ball bearings of the series and to cause the wheels to pass directly from the rails on to the bearings without the usual vibration and jar that is so disagreeable and injurious. It will, therefore, be obvious that the wheels will run more smoothly along the track. The groove is open at one end, as shown, to render the bearings capable of being inserted therein and withdrawn therefrom as occasion requires. However, when the parts of the joint are assembled the undercut wall 10 of the adjacent recess 2 closes against the open end of the groove to prevent the bearings from being displaced therefrom. Of course, it is merely necessary to separate the parts slightly to permit the bearings to be expeditiously removed from the groove when worn out, to be replaced by new bearings.

The extension 7 and the splice bar 5 are preferably connected together at the joint by means of a bridge plate 11 which is integral therewith and extends transversely therebetween. The bridge plate is accommodated in recesses or rabbets 12 formed in the upper surfaces of the meeting extremities of the heads of the rail sections, the recesses being somewhat shorter than the seating recesses 2 on one side of the head, and being substantially equal in depth to one half the thickness of the head. The bridge plate lies flush with the tread surface of the rail and spans the joint and thus materially assists the bearings 8 in providing a smooth joint. In addition to this function the bridge plate prevents the ends of the rail sections from rising and also reinforces the structure of the chair and increases its durability and strength.

From the foregoing description in connection with the accompanying drawing it will be apparent that I have provided an improved rail joint which is thoroughly practical and efficient, and which consists of comparatively few parts, the parts being susceptible of being easily and quickly assembled

and being not likely to get out of order. The anti-friction bearings serve to relieve the ends of the rail sections from wear and perform various other functions that will be at once apparent to those persons familiar with the art to which the invention appertains.

Having thus described the invention, what I claim is:

1. In a rail joint, the combination with companion rail sections formed in their meeting ends with seating recesses, of a member received in said recesses and spanning the joint, and a longitudinal series of anti-friction bearings mounted on the member and disposed at the tread surface of the rail, the walls of the recesses being undercut in proximity to the ends of the series of anti-friction bearings, as and for the purpose specified.

2. In a rail joint, the combination with companion rail sections formed in their meeting ends with seating recesses, of a member received in said recesses and spanning the joint, the member being formed with a longitudinal groove, and a series of anti-friction bearings seated in the groove and disposed at the tread surface of the rail, the groove being open at one end to permit the insertion and removal of the bearings, and a wall of one of the recesses being arranged to normally close against the open end of the groove to retain the bearings therein.

3. In a rail joint, the combination with companion rail sections formed at their meeting ends with rabbets in their tread surfaces and with seating recesses on one side of their heads, of a rail chair comprising a base, co-acting splice bars upstanding from the base and extending over the base flanges of the rail sections and abutting against the webs thereof, the end portions of one of the splice bars fitting under the heads of the rail sections and the intermediate portion of said splice bar being extended upwardly flush with the tread surface of the rail and being received in the seating recesses, and the other splice bar being offset laterally to fit against the adjacent side face of the heads of the rail sections and to provide a shoulder for supporting the same, and a bridge member connecting the splice bars and received in the aforesaid rabbets and lying flush with the tread surface of the rail.

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

CHARLES L. KRISTOFFERSON. [L. S.]

Witnesses:

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W. E. RHINEHART.