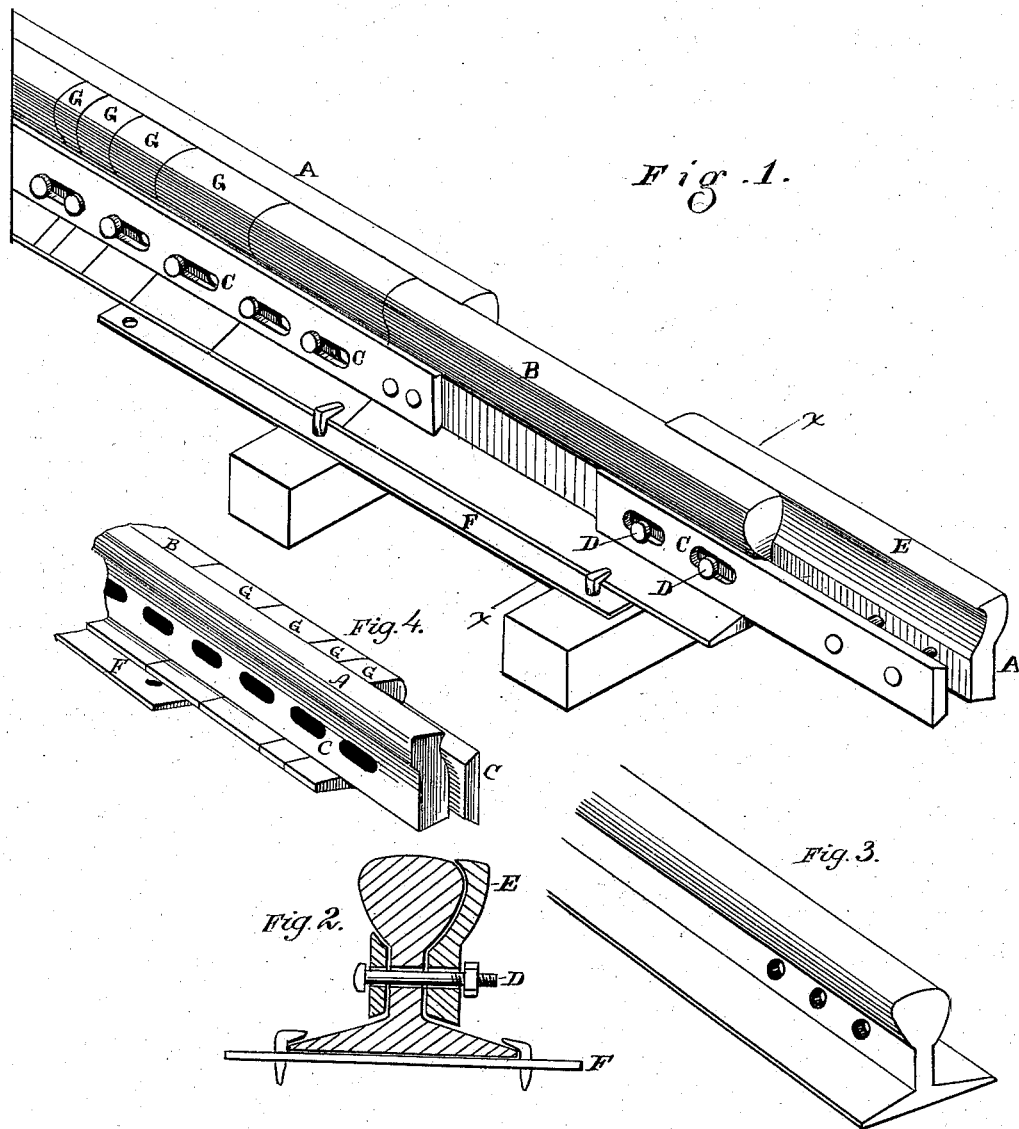


W. A. HAWTHORN.
Rail-Joint.

No. 205,265.

Patented June 25, 1878.



Witnesses

Geo. H. Strong,
Frank. A. Brooks

Inventor

William A. Hawthorn
by Duway & Co.,
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM A. HAWTHORN, OF CARSON CITY, NEVADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO H. HUNTER, OF SAME PLACE.

IMPROVEMENT IN RAIL-JOINTS.

Specification forming part of Letters Patent No. 205,265, dated June 25, 1878; application filed March 28, 1878.

To all whom it may concern:

Be it known that I, W. A. HAWTHORN, of Carson City, county of Ormsby, and State of Nevada, have invented an Improved Railway-Joint; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved joint. Fig. 2 is a cross-section of same on line *x x* of Fig. 1. Fig. 3 is a perspective of the rail. Fig. 4 is a detail on the reverse of Fig. 1.

My invention relates to certain improvements in railway-joints; and it consists, first, in the combination, with the expansion-bar, of short pieces of ordinary rail of different lengths, forming removable splice-pieces, held in position by the ordinary fish-plate and the expansion-bar, for the purpose hereinafter described; second, in the combination, with the removable fish-plate and expansion bar or joint, of a stationary plate or chair, in which the rails carrying my device lie, so as to allow free expansion without changing the ties, road-beds, or chairs.

My expansion bar or joint does not necessitate any change whatever in the construction of the ordinary rails or road-beds, and forms a smooth passage for the wheels over the meeting ends of the rails, so that the ends are not battered, as is usual, and at the same time the expansion and contraction of the rails do not affect the joint.

In order that others may understand the object and nature of my invention, reference is had to the accompanying drawings.

Let *A* represent my expansion-bar or combined fish-plate and joint, which is formed in a shape to correspond to the side of an ordinary rail, *B*. The lower edge of this expansion-bar is slightly beveled, and rests on the inner side of the lower flange of the rail, as shown.

Slots *C* are cut in different places in the expansion bar or joint and fish-plates, through which bolts *D* pass in the usual manner, securing the expansion bar or joint properly in place.

The upper part of the expansion-bar, on its inner and outer sides, is shaped somewhat in

the outline of an ordinary *T*-rail, so as to lie close against rail *B*, and its upper inner edge lapping slightly over the curved upper edge of the said rail, in such a manner as to form a smooth firm bearing for the passing wheels of the cars as they cross the space usually left between one rail and another. The expansion-bar extends sufficiently above the main rail to take a large portion of the weight of the passing trains, thereby protecting the ends of the rails from being battered and from sinking out of level, making the joint the strongest part of the line, and virtually forming an endless rail.

One end of the expansion bar or joint is bolted, in the manner described, to one end of a rail, the slots in the part lapping onto the next rail being longer, so as to give free expansion and contraction on level road-beds or slight grades.

The stationary plate or chair *F* is designed to be placed in a position at the top and bottom of hills or steep grades, and on it rests the rail formed of removable splice-pieces and the expansion bar or joint. These removable splice-pieces *G* are simply small pieces of ordinary rail of various lengths set together, and held in place by my expansion bar or joint and the ordinary fish-plates and bolts. Each of these pieces of rail or splice-pieces *G* has a hole cut in it, through which the bolt passes; otherwise it is the same as a common piece of rail.

When the joints begin to clog or crowd by the gradual movement of the rails down the hill, one of the splice-pieces *G* may be removed by taking out the bolts and releasing the expansion-bar *A*, which holds it in place, thus releasing the whole line to the top of the hill. The bolt taken from the removed splice-piece may be placed in the next vacant bolt-hole in the expansion bar or joint, thus keeping the combination firmly locked.

As the track crawls farther the next larger splice-piece may be taken out, and the smaller one first taken out substituted, the splice-pieces being of different length. This process may be repeated indefinitely until the line has crawled the length of a rail, when the next whole rail may be removed and the combina-

tion formed by the splice-pieces and expansion-bar put down in its place.

The object of the stationary plate or chair F is to allow the splice-pieces G to slide freely over a smooth surface as they are crowded by the crawling of the rails, so the necessary lengths can be removed at this one point and the track kept full and complete.

As the combination is crowded down the hill and the splice-pieces taken out, a precisely similar arrangement is necessary at the top of the grade, so that splice-pieces of the same size removed below may be inserted above.

In the stationary rails at the top and bottom of the hill are drilled holes to receive the bolts taken from the splice-pieces, so that they may be put through the expansion bar and rail, and assist in keeping the bar firmly in place or locked.

It will thus be seen that my expansion bar or joint may be rolled to fit the side of the ordinary rail, and will answer several purposes. It dispenses with the use of fish-plates on the side of the rail where it is used, and really forms a supplementary rail, which carries the wheels over the meeting ends of the main rails without any jar or blow, preventing the ends from being battered, and removing a source of annoyance to railway travelers in the constant jar and noise incident to the present system of railroads.

The removable splice-pieces described are made of common railroad iron or steel, and may be formed of the better portion of old rail, and therefore are inexpensive. The stationary plate on which the combination rests is simply a flat piece of iron with holes drilled in it for the spikes.

On any road on which my device may be used the cars can travel at least ten miles an hour

faster than with the present construction of joints, and with greater safety to life and property, by reason of the track being perfectly smooth and not sunken at the joints, preventing the rail from breaking in frosty weather and throwing the train.

I am aware that several devices have been patented for adjustable rail-joints; but in all of them some new construction of the main line is necessary. In the case of my combination no change whatever in existing conditions is necessary, the splice-pieces being formed of short lengths of common rail, and the expansion bar or joint fitting against the splice-pieces as it does against the rail.

By the peculiar form of the upper inner edge of the expansion-bar, which laps over the curved edge and onto the face of the rail, the expansion-bar takes the weight of the trains.

I am also aware that removable splice-pieces have been previously employed; and I do not therefore claim, broadly, these pieces; but

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

1. The peculiarly-shaped bar or plate A, fitting the shape of the rail, in combination with the fish-plate and sections G, perforated to receive the bolts and be locked at one end, substantially as shown, and for the purpose herein described.

2. The bar or plate A, in combination with the sections G and the supporting-plate F, substantially as shown, and for the purpose herein described.

In witness whereof I hereunto set my hand and seal.

WILLIAM A. HAWTHORN. [L. S.]

Witnesses:

FRANK A. BROOKS,
C. W. MOULTHROP.