W. R. ARTHUR.

RAILROAD RAIL JOINT.

No. 37,067. Patented Dec. 2 1862.

Fig. 2

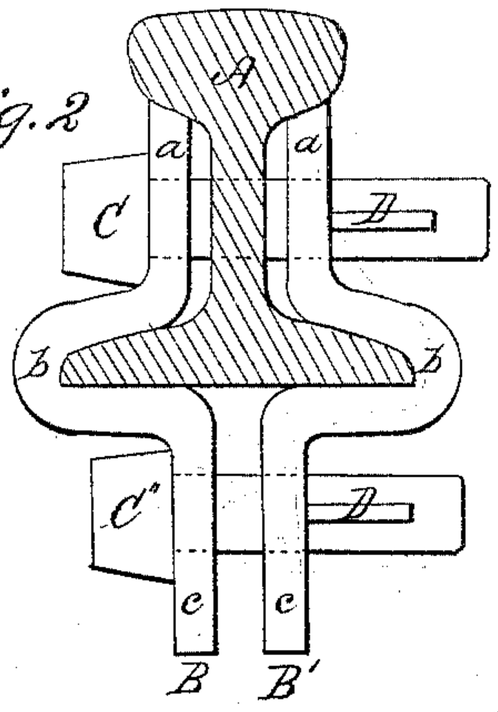

Fig. 1

Witnesses;
Jas Faye
J Tillotson

Inventor;
W. R. Arthur
per Knight Bros Attys

UNITED STATES PATENT OFFICE.

WILLIAM R. ARTHUR, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND LEVERETT H. CLARKE, OF SAME PLACE.

IMPROVEMENT IN RAILROAD-SPLICES.

Specification forming part of Letters Patent No. **37,067**, dated December 2, 1862.

To all whom it may concern:

Be it known that I, WILLIAM R. ARTHUR, of Chicago, Cook county, Illinois, have invented a new and useful Splice for Railway-Joints; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification.

This improvement relates to a means of preserving the rigidity of T railroad-rails at their points of junction, so as to insure a perfectly continuous and vertically-rigid track; and my invention consists in the application of a pair of peculiarly-formed splice-plates, which are so adapted and secured to the head and base of the rail as to effectually support and stiffen the track without throwing any strain on the splice-bolts, whose office in this improvement is merely to draw and hold the splice-plates to their places.

Figure 1 is a perspective view of my fastening in position. Fig. 2 is an end view of the same.

A A′ are contiguous portions of two T-rails.

B B′ are two splice-plates, each crimped into the represented form out of a rectangular plate of half-inch boiler-iron, so that when secured to their places, one on each side of and equally overlapping the contiguous rails, the top edge of the upper vertical portions, *a*, bear snugly underneath and uphold the heads of the rails, while the central crimped portions, *b*, grasp the rail-base, both of said parts acting in conjunction with the lower vertical portions, *c*, to secure an absolute vertical rigidity and practical continuity of rail. The splice-plates B B′ may be in length about equal to the space between the cross-ties, and may be applied after the track has been spiked down.

The upper vertical portions, *a*, of both splice-plates are secured by bolts C C′, one of which passes through the neck or web of each rail, and one or more similar bolts, C″ C‴, pass through and secure the vertical portions, *c*, of the splice-plates beneath the rails. Each bolt has a key, D, or equivalent device, which, being driven home, acts to cause each part of the splice-plates to closely hug its appropriate portion of the rails.

This form of splice may be adapted much more snugly and closely to the rails than those in a single piece, which must be slipped over the end of the rail while loose, and which cannot be supplied, removed, or replaced without disturbing the track, nor be adjusted closely after application. It is also more secure and effectual than the more costly four-plate device, any deflection of which acts to separate the upper and lower portions and to sever the side bolts on which the entire ultimate strain is thrown. It also affords a much more efficient and reliable protection against the unequal depression of the adjacent ends of the rails under a passing load than any fastening which depends wholly or in part upon keys or bolts for vertical support beneath the base of the rails. The two upper bolts, C C′, prevent any "crawling" or endwise separation of the rails under a heavy traction, and, in conjunction with the lower bolt or bolts, secure a more perfect clamping of the rails than is possible with only an upper or a lower set of bolts.

It is manifest that the bolts do not take the direct strain of a passing load, because any deflection of the rail will cause the vertical portions *a* to be tightly gripped between the head and base, and in like manner the crimp *b* tightly grasps the base both above and below, fitting closely against the under side thereof, across nearly its entire width, so that if the bolts were withdrawn the splice-plates would remain in place while thus loaded.

A somewhat greater strength and economy of material may be secured by so rolling or swaging the plate as to thicken the crimped and middle portions, and to impart a convex outline to the lower edge, while the upper portion of the plate may be made to abut somewhat more squarely against the head by a slight inward curve or batter.

I do not claim, broadly, the use of crimped fish-plates, secured by bolts or keys above and below the rails. Neither do I claim any device which depends chiefly upon keys, bolts, or other transverse fastenings for vertical support beneath the base of the rail, or any which requires to be slipped endwise over the rail. My invention is restricted to a splice or fastening adapted for application to the T-rail in common use after the rails have been spiked down, and when so applied fitting the said T-

rail, in the manner hereinbefore specified—that is to say, wedging tightly in between the tread and base of the rail, tightly grasping the base, and covering the under side of the latter for the greater part of its width in such a manner that the horizontal bolts, by which the plates are secured, shall never be subjected to no greater lateral pressure by the vertical weight of a passing load.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

A splice or fastening for T-rails, consisting of the pair of deeply-crimped fish-plates B *a b c* B′ *a b c*, secured by bolts or keys C C′, passing through the upper part of the fish-plates and through the neck of each rail, and by one or more bolts or keys, C″ C‴, passing through the lower parts of the fish-plates beneath the rails when the said plates are adapted to fit the T-rails in the manner specified—that is to say, wedging tightly between the base and tread of the rails, grasping the base above and below, and covering the under side of the latter for the greater part of its width, all as herein shown and described, so as to support the head and base of the rails against both vertical and lateral deflection without direct strain upon the bolts.

In testimony of which invention I have hereunto set my hand.

W. R. ARTHUR.

Witnesses:
P. DAGGY,
H. L. WAIT.