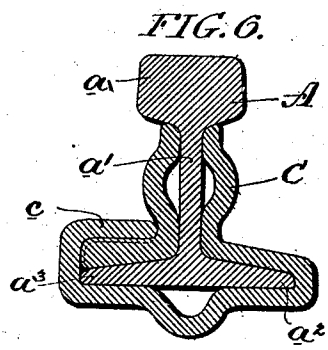
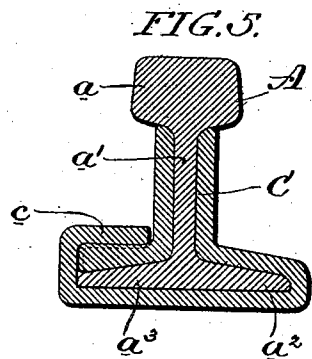
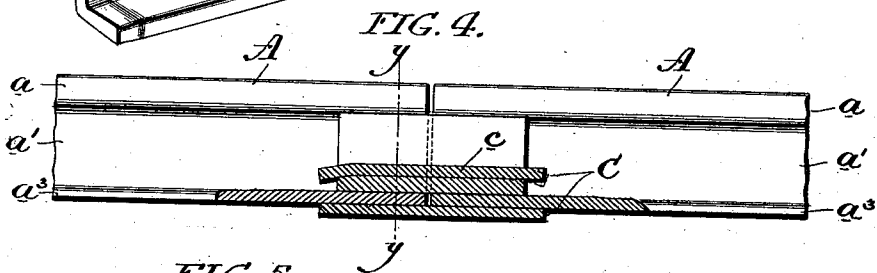
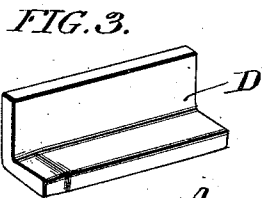
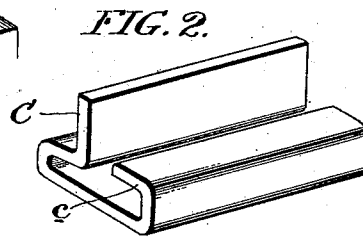
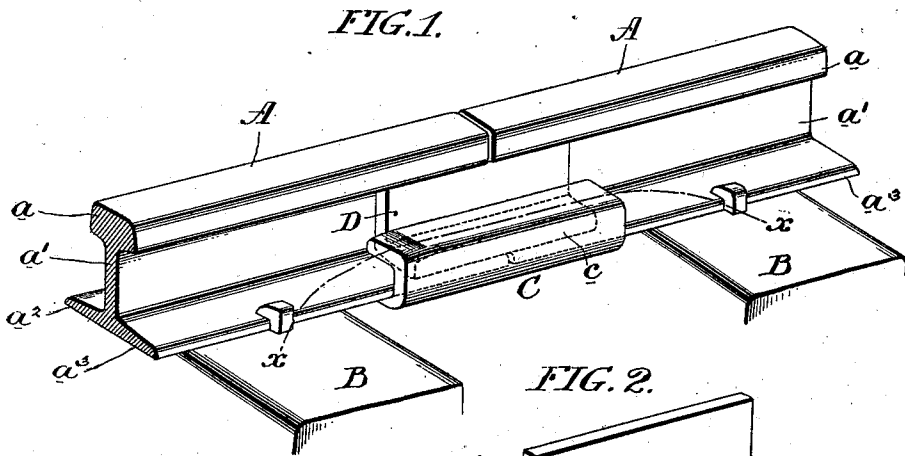


(No Model.)

H. VELLENOWETH.  
RAIL JOINT.

No. 548,678.

Patented Oct. 29, 1895.



Witnesses.

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# UNITED STATES PATENT OFFICE.

HARRY VELLENOWETH, OF PHILADELPHIA, PENNSYLVANIA.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 548,678, dated October 29, 1895.

Application filed August 13, 1895. Serial No. 559,119. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY VELLENOWETH, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Rail-Joints, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The rail-joint embodying my invention is designed to be used in place of the ordinary fish-plates for securing together contiguous rails; and it consists in a novel construction and arrangement of parts, which will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the contiguous ends of two rails secured to the ties by spikes and held together by my improved rail-joint. Fig. 2 is a perspective view of the casing or joint-bar, and Fig. 3 a perspective view of the key, these two parts constituting the rail-joint. Fig. 4 is a section on the line  $x x$ , Fig. 1. Fig. 5 is a section on the line  $y y$ , Fig. 4; and Fig. 6 is a sectional view similar to Fig. 5, illustrating a modification of my invention.

A A are the rails; B B, the ties, to which the rails are spiked as in the ordinary road-bed. The rails illustrated are of the type known as "T-rails," which are ordinarily used in steam-railroad construction, and the rail-joint is especially designed for this type of rail, although it may be found serviceable for uniting rails of different contour.

C is the box, casing, or joint-bar, which when applied to the rails, as may be seen by reference to Fig. 5, extends in cross-section from the rail-head  $a$ , along the web  $a'$ , above, around, beneath, and above the foot-flanges  $a^2 a^3$ , conforming in contour to these parts of the rail and lying contiguous thereto, except the bend  $c$  above the foot-flange  $a^3$ , where the joint-bar is elevated above the flange, so as to leave a space or groove approximately equal in width to the thickness of the joint-bar. The upper surfaces of the rail-flanges are inclined, as shown, whereas the bend  $c$  of the joint-bar is preferably horizontally disposed, so that the groove thus formed is somewhat wider at its outer or

closed side than at the side adjacent to the web of the rail. The extreme end of the bend  $c$  of the joint-bar is not brought over the flange  $a^3$  quite as far as the web, but a space about equal in width to the thickness of the joint-bar is left between it and the web.

The key or angle bar D is of such shape that when in position, it will extend from the head  $a$ , along the web  $b$ , and above the flange  $a^3$ , its convex face conforming in contour to and fitting closely against these parts of the rail. The horizontal part of the key or angle bar is of the shape and thickness of the groove formed by the bend  $c$  and the flange  $a^3$ —that is, it is thicker at its outer than at its inner end—so that when in position on the rail the concave face of the key will bind against the bend  $c$  of the joint-bar and the two parts of the rail-joint will co-operate to lock themselves together as well as to lock the rails.

The horizontal part of the key is flared or tapered off at one end on its upper face and its longitudinal edge, so as to facilitate its entry into the groove.

The joint-bar is about two inches longer than the key, so that its ends project beyond the corresponding ends of the key when the rail-joint is in position on the rails.

The method of applying the rail-joint is as follows: The joint-bar is first slipped upon one of the rails and the two rails placed end to end and the bar then slipped along until it overlaps both rails. The key is then entered into the groove at its tapered end and driven home. One or both of the overlapping ends of the joint-bar are then hammered down over the key, as illustrated in Fig. 4, and the key thus firmly locked in place.

It will be observed that the joint is neither spiked to the tie nor fastened to the rails by means of bolts.

My improved rail-joint is especially designed for use upon steam-railroad beds of ordinary construction, where the rails are directly spiked to the ties without the use of chairs. The ties, therefore, are always laid so that the adjacent ends of the rails lie between the ties and above the ballast instead of upon one of the ties. My invention, therefore, is not designed to be used as a chair, although it may be modified for that purpose,

but is particularly intended, as hereinbefore mentioned, to take the place of fish-plates.

Fig. 6 illustrates a modified form of my invention, the key and the joint-bar being bent, as illustrated, so as to leave free spaces at the central portion of the web on both sides and at the central portion of the base.

The advantages of my invention are the small number of parts and general simplicity of construction, cheapness, the facility with which it is applied to the rails, and the absolute impossibility of its becoming loosened or disengaged when once in place.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a rail joint the combination with a joint bar bearing against the one side of the head of the rail, extending thence along the corresponding side of the web, above, around and underneath the base, and thence bent above and over one of the foot flanges, leaving a space or groove between the upper surface of said foot flange and the bent portion of said joint bar, the said joint bar lying contiguous to the rail at the junction of the head and web, the junction of the web and the other of said foot flanges, and at the extremities of said flanges, of a key, substantially rectangular in cross-section, bearing against the opposite side of the head of the rail, extending thence along the corresponding side of the web and into the said space or groove and of such size as to fill the same, the said key lying contiguous to the rail at the junction of the head and web and the junction of the web and the first named foot flange, the said key having parallel faces, and the upper surface and longitudinal edge of that part of the key adapted to enter the groove being tapered as described, the said joint bar being of greater length than the key so as to overlap the same at both ends, substantially as and for the purpose described.

2. In a rail joint, the combination with a joint bar bearing against the one side of the head of the rail, extending thence along the corresponding side of the web, above, around and underneath the base, and thence bent above and over one of the foot flanges, leaving a space or groove between the upper surface of said foot flange and the bent portion of said joint bar, the said joint bar lying contiguous to the rail at the junction of the head and web, the junction of the web and the other of said foot flanges, and at the extremities of said flanges, of a key, substantially rectangular in cross-section, bearing against the opposite sides of the head of the rail, extending thence along the corresponding side of the web and into the said space or groove and of such size as to fill the same, the said key lying contiguous to the rail at the junction of the head and web and the junction of

the web and the first named foot flange, the said key having parallel faces, and the upper surface and longitudinal edge of that part of the key adapted to enter the groove being tapered as described, the said joint bar being of greater length than the key so as to overlap the same at both ends and being bent over the ends of the said key so as to lock the same in place, substantially as and for the purpose described.

3. In a rail joint the combination with a joint bar bearing against the one side of the head of the rail, extending thence along the corresponding side of the web, above, around and underneath the base, and thence bent above and over one of the foot flanges, leaving a space or groove between the upper surface of said foot flange and the bent portion of said joint bar wider at its outer or closed than at its inner or open end, the said joint bar lying contiguous to the rail at the junction of the head and web, the junction of the web and the other of said foot flanges, and at the extremities of said flanges, of a key, substantially rectangular in cross-section, bearing against the opposite side of the head of the rail, extending thence along the corresponding side of the web and into the said space or groove, and of such size as to fill the same, the said key lying contiguous to the rail at the junction of the head and web and the junction of the web and the first named foot flange, the said key having parallel faces and the upper surface and longitudinal edge of that part of the key adapted to enter the groove being tapered as described, the said joint bar being of greater length than the key so as to overlap the same at both ends, substantially as and for the purpose described.

4. In a rail joint, the combination of a joint bar with a key, the said bar overlapping the said key so as to permit the ends of said bar to be bent over the ends of said key so as to lock the same in place, substantially as described.

5. In a rail joint, the combination of a joint bar with a key having parallel sides and flared at one end substantially as described to permit the entry of said key between said bar and the rail.

6. In a rail joint, the combination of a joint bar with a key having parallel sides and flared at one end to permit the entry of said key between said bar and the rail, the said bar overlapping the said key so as to permit the ends of said bar to be bent over the ends of said key so as to lock the same in place, substantially as described.

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

HARRY VELLENOWETH.

Witnesses:

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