

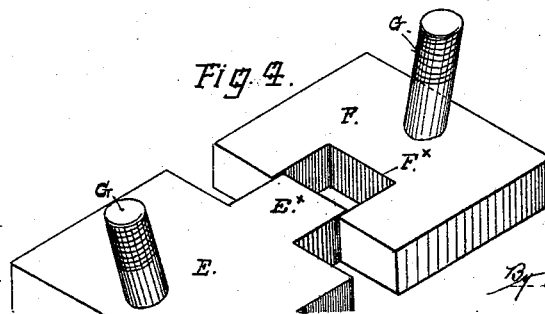
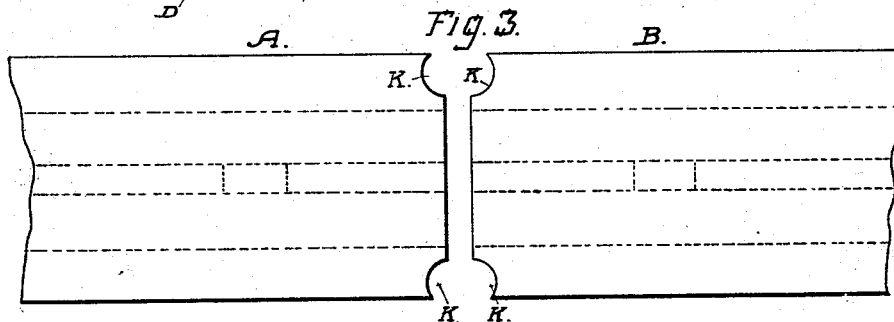
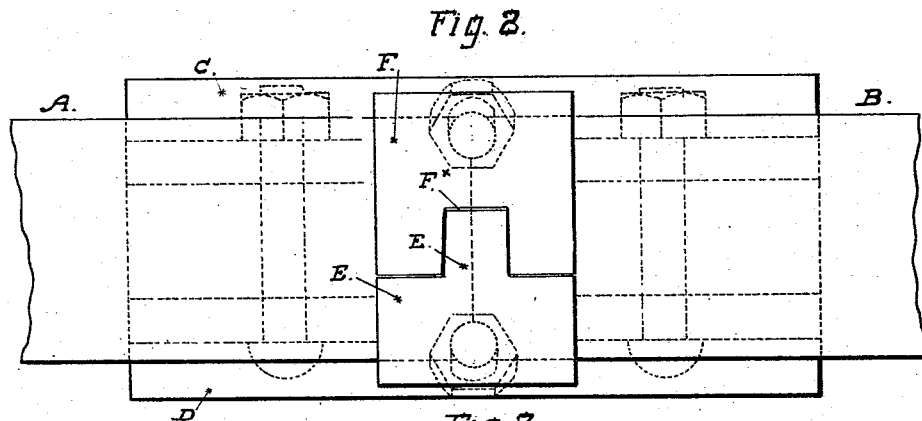
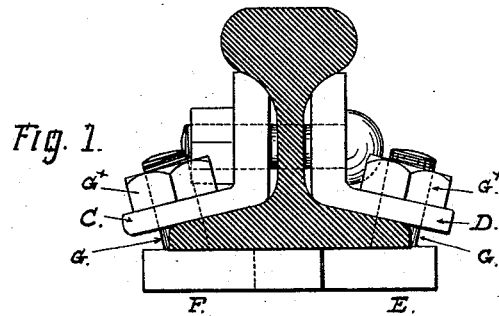
(No Model.)

L. H. WOOLLEY.

SPLICE OR SUPPORT FOR RAILWAY RAIL JOINTS.

No. 524,293.

Patented Aug. 7, 1894.



Witnesses:

Mr. Regier  
Wm. Franklin

Inventor

L. H. Woolley

By Smith & Brown  
his attys.

# UNITED STATES PATENT OFFICE.

LELL H. WOOLLEY, OF OAKLAND, CALIFORNIA.

## SPLICE OR SUPPORT FOR RAILWAY-RAIL JOINTS.

SPECIFICATION forming part of Letters Patent No. 524,293, dated August 7, 1894.

Application filed May 15, 1893. Serial No. 474,305. (No model.)

*To all whom it may concern:*

Be it known that I, LELL H. WOOLLEY, a citizen of the United States, residing in the city of Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Joints for Railway-Rails, of which the following is a specification.

This invention has for its object to produce a joint for the meeting ends of railway rails in and by means of which the ends of the rails will be effectively supported and kept in line against the movements of depression in either rail, while longitudinal and lateral movements of dislocation are at the same time prevented; the parts being of such construction that a smooth continuous joint of great durability is obtained at comparatively small cost.

The improvement constituting my present invention consists in the construction and combination with angular fish-plates each formed with a perpendicular member fitted to, or against, the webs of both rails at a joint and a horizontally-disposed outwardly-extending member shaped, or set to rest upon, the top of the flanges of both rails across the joint, of a joint-support consisting of a bolt with an enlarged head of suitable size or breadth to set across the joint underneath the flanges of both rails and with a threaded shank of suitable length extending upward between the joints and through the longitudinal member of the fish-plate; one of these bolts being set on each side of the two rails between the ends from beneath and drawn up by a nut on the upper end against the fish-plate, as hereinafter fully explained.

In the accompanying drawings forming part of this specification to which reference is made by letters:—Figure 1 is a vertical cross-section of my improved joint. Fig. 2 is a view of the joint looking at the under side. Fig. 3 is a view looking at the bottom of the meeting ends of the rails. Fig. 4 is a perspective view of one of the bolts.

The ends of the two rails —A—B— at the joint being cut square are set together in the usual way with allowance for expansion, and the joint is made by fish-plates —D—D— and bolts —C—C— set through the plates and the rails. This is the manner of uniting the ends of two rails at a joint commonly followed

at the present time, but in addition to, or combination with such fastenings various special means or devices to support the ends of the rails against vertical movement and displacements out of line under the weight of the loads passing over them have been devised and applied such, for example, as a chair consisting of a horizontal bed-plate, which is set under the joint, and vertical or standing flanges on the sides of the plate, which embrace the rails along the sides and between which the end- portions of the rails are secured by fastenings of various kinds. In some cases these parts are integral with the bottom-plate, and in some cases they are separate pieces secured in place by bolts. Chairs of this description, however, require a support of some kind under them to which they can be spiked down and for that purpose a special tie must be set in the bed where a joint falls between two of the track-ties, or a block or other suitable support must be laid in the road-bed for it. In addition thereto, the fastenings which hold the rails in these chairs require to be of such character or so applied that longitudinal movements of the rails under expansion and contraction can take place.

The means which I combine with a fish-plate joint to support the ends of the rails, against vertical displacement enables me to dispense with the expensive chair and many bolts and fastenings as well as with additional tie or special support or foundation in the road-bed. This means consists of the bolt —E— constructed with an enlarged head —E'— in size or breadth sufficient to extend across the joint and to extend under the end of each rail. The shank of this bolt is threaded for a nut —E'— and standing substantially perpendicular upward from the head, it has sufficient degree of inclination outward to set about perpendicular to, or substantially at a right angle with, the top-face of the rail-flange and the outwardly standing member of the fish-plate that rests upon the rail-flange. The object of this construction is to bring the nut on the bolt down to an even seat against the fish-plate without the use of tapered washers under the nuts. As before mentioned herein, the shank of this enlarged-head bolt is set between the ends of the rails at the joint and for that purpose the

edge of each rail is cut away as shown at K, Figs. 1 and 3. This cut-away part forms an opening of the full size at least of the diameter of the shank of the bolt if the ends of the two rails were set up closely together. Thus when these bolts are set in position as shown in Figs. 1 and 2 and are drawn up tightly by the nuts on their shanks the flange of each rail is clamped between the head of the bolt under the flange and the member of the fish-plate upon the flange, but the shank of the bolt itself setting between the ends of the rails is detached from both rails and is directly attached to the fish-plate alone. The object of this peculiar application of the bolts is to allow free movement of both rails under expansion and contraction without affecting the position of the bolt; and the head of the bolt is made sufficiently broad to extend across the joint and carry the ends of both rails under the extreme contraction or separation which will take place at the joint. There are but two of these supporting-bolts required for a joint, one on each side, with their shanks setting through the angular fish-plates which extend across the joint and with nuts on the ends above the fish-plates. These parts constitute a complete connecting means and fastening between the meeting ends of two rails and a perfect support for the two rails against vertical displacement of either rail.

As a means of holding the bolts from turning and working loose I make the heads of the two bolts sufficiently large or broad to meet and interlock or engage with each other under the center of the joint, so that the bolts mutually hold or lock each other. For this purpose I form a recess or mortise  $E^2$  in one head and a tenon or projection  $E^3$ , on the head of the other bolt; so that when both bolts

are in position the projection on one sets into the recess in the other. Fig. 3 of the drawings represents the general form of one of these interlocking heads. A joint between two rails having different widths of flange can be made with these parts constituting my improvement as well as between rails of the same size or pattern.

The improvement can be applied also to joints in rails already laid, simply by cutting off the corners of the flanges on the end of each rail to let the shank of the supporting bolts set between the ends of the joints.

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

In a railway-rail joint the combination, with the ends of the rails at a joint, of the fish-plates each having a perpendicular member to set against the webs of the rails across the joints and an angular member extending outwardly over and against the top-face of the rail-flanges, the supporting bolts on opposite sides of the rails each having an enlarged head to set under and against the bottom of the flanges and across the joint with a shank adapted to extend upward between the ends of the two rails and through the angular member of the fish-plate on the flange and a nut upon said shank seated on the said fish-plate; the ends of the two rails being cut away on the edges of their flanges, as described, to admit the shank of the bolt between them for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

LELL H. WOOLLEY. [L. S.]

Witnesses:

C. W. M. SMITH,  
CHAS. E. KELLY.