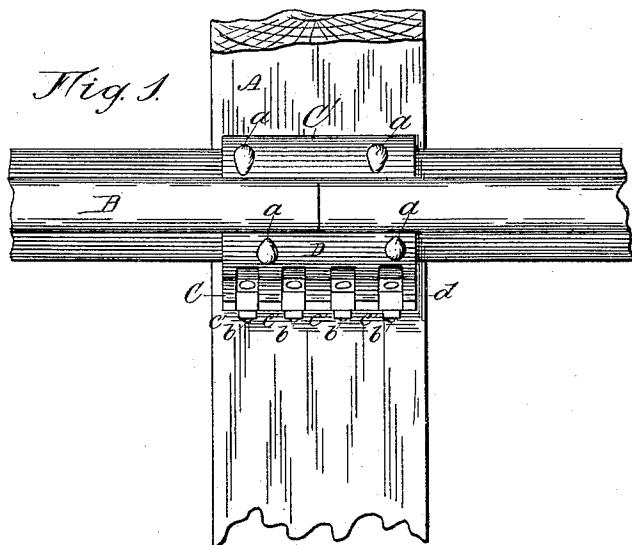


(No Model.)

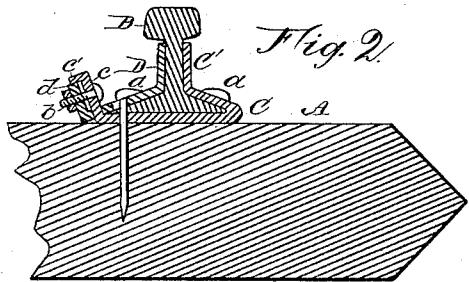
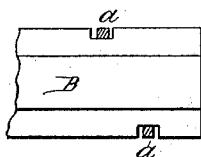
D. W. MILLER.  
RAILROAD RAIL JOINT.

No. 452,939.

Patented May 26, 1891.



*Fig. 3.*



Attest  
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# UNITED STATES PATENT OFFICE.

DAVID W. MILLER, OF MARION, IOWA, ASSIGNOR OF ONE-HALF TO FRED. J. MILLER, OF SAME PLACE, W. J. MARKHAM, OF SIOUX FALLS, SOUTH DAKOTA, AND M. E. ROBINSON, OF CHICAGO, ILLINOIS.

## RAILROAD-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 452,939, dated May 26, 1891.

Application filed November 10, 1890. Serial No. 371,000. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID W. MILLER, a citizen of the United States, residing at Marion, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Railroad-Rail Joints; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the connection of the ends of railroad-rails; and the object of the invention is to join the rails in such a manner as to admit of the necessary expansion and contraction, and provide a firm support for the ends of the rails.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a rail-joint embodying my invention. Fig. 2 is a transverse section of the same in the line  $\alpha\alpha$ , and Fig. 3 is a plan view of the end of one of the rails.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is the railroad-tie, and B B are rails, of the usual construction.

The clamp by which the ends of the rails are held in position consists of two angled plates C, C', and D, of peculiar construction, and connecting-bolts  $bb$ . One of these plates has a broad horizontal portion C, which is adapted to rest on the tie and support the flange or base of the two rails at the end.

This portion of the clamp may be designated as a "service-plate." At one side it is united integrally, as in full outline, or separably, as indicated by the dotted lines, with a lateral wing C' fitting the angles on one side of the

40 rail, its upper edge bearing under the shoulder of the ball part thereof. This portion of the clamp, therefore, bears on the bottom of the rail, and on the upper side of one flange and one side of the vertical web with a final bearing under the shoulder of the ball. On

45 the opposite side of the rail the service-plate extends somewhat beyond the outer edge of the flange, and thence turns upwardly, as indicated in Fig. 2, at practically a right angle to the upper surface of the flange on that

side. This portion of the plate is separated into a series of lugs  $c c c c$ , four being illustrated, though a greater or less number may be employed, as desired. A lip  $c'$  forms a bearing for the upper edge of the flange  $d$  of the plate D, and serves to protect the bolt  $b$  from undue strain and to afford a bearing for the outer portion of the plate D corresponding to the shoulder of the rail at the inner side, irrespective of the bolt. The main part of the plate D corresponds in form to the wing C', but it is provided with a flange  $d$ , turned up at right angles to the body of the plate. Just inside this flange the plate is perforated to admit the lugs  $c c$ , which when the parts are connected as in use lie between the flange  $d$  and the rail. The flanges  $c$  and  $d$  are connected by a bolt  $b$ . The plates C, C', and D are perforated to receive the spikes  $a a a a$ , which fasten the whole to the tie. The notches  $e e$  in the rails through which the spikes pass are made long enough to allow for the expansion and contraction of the rails. It will now be seen that when the parts are in place the rails are clamped and held by simply tightening the nuts on the bolts  $b b$ . By this means the joint is made without the use of bolts through the rails, and the annoyance of loose nuts is thereby avoided. The service-plate C, in connection with the wings, also serves to hold the ends of the rails from undue depression by the passage of trains, locking the ends of the abutting rails, so that they are practically as rigid at the joint as elsewhere. It will also be seen that the ultimate bearing of the wings is at the edges under the ball of the rail. The screwing up of the nuts tends, therefore, to force these edges into contact with the shoulders under the ball portion of the rail, and inasmuch as the strain on the wings is largely edgewise, they may be made of comparatively light material. Their angled form also gives them great strength against lateral strains, such as tend to bend fish-plates and such devices in common use.

The clamp-plates should be made of some strong material, as wrought-iron or steel, and in practice the parts C and C' are made integral by preference, though the wing C' might

be bolted to the other without affecting the principle of the invention.

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

1. The combination, with rails, substantially as described, of a bottom or service plate, a connected wing fitting the top of one flange and one side of the web, a correspondingly-shaped wing fitting the opposite side of the rails and upturned portions of said wing, and the bottom plate provided with bolts, by the tightening of which the two wings are drawn tightly against the opposite sides of the rails.

2. A connection for the abutting ends of railway-rails, consisting of a plate C, having a wing C', fitting the bottom and one side of the rails and provided on the other side with upturned lugs c c, and a plate D, fitting the

opposite side of the rail with an upturned flange d, and openings in the plate D to admit the lugs of the other plate, and connected tightening-bolts, substantially as and for the purpose set forth.

3. In a rail-joint, the combination of the plate C, connected wing C', and having lugs c c, provided with lips c' c', and the wing D, perforated to admit the lugs c c and having flange d, and connecting-bolts adapted to draw the said flange and lugs toward each other, and thus clamp the wings against the rails.

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

DAVID W. MILLER.

Witnesses:

S. W. BRAINERD,  
FRANK W. CLARK.