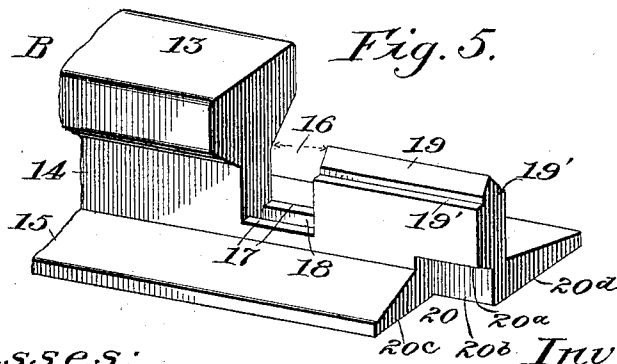
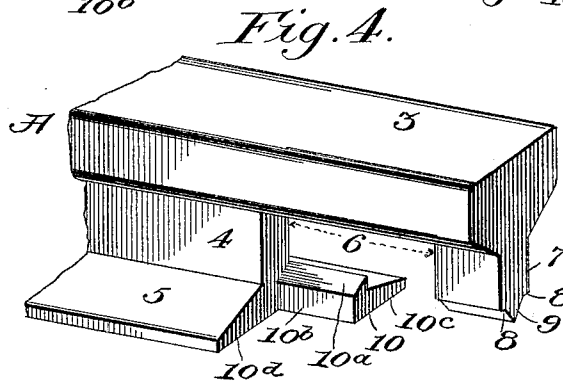
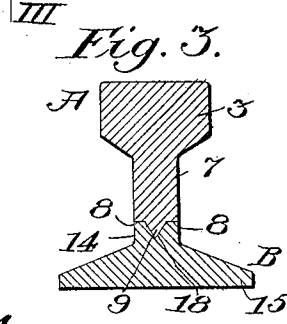
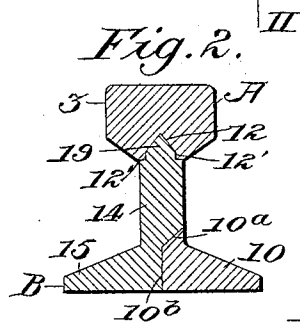
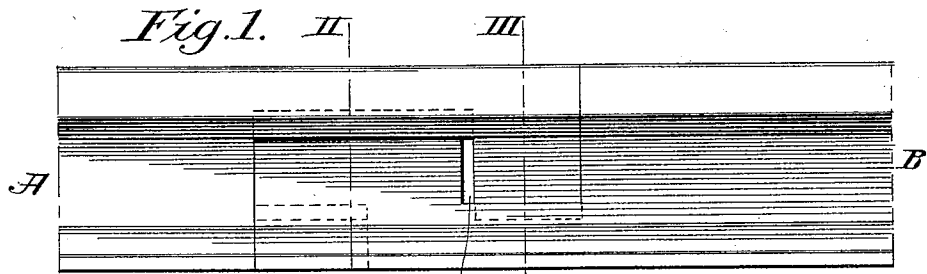


No. 822,896.

PATENTED JUNE 5, 1906.

A. H. KNOPF.
RAIL JOINT.

APPLICATION FILED MAR. 27, 1906.



Witnesses:

W. C. Smith
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Inventor:

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Att'y.

UNITED STATES PATENT OFFICE.

ALBERT H. KNOFF, OF OAK HALL, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES M. McCURDY, OF BELLEFONTE, PENNSYLVANIA.

RAIL-JOINT.

No. 822,896.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed March 27, 1906. Serial No. 308,230.

to all whom it may concern:

Be it known that I, ALBERT H. KNOFF, of Oak Hall, in the county of Center and State of Pennsylvania, have invented a new and useful Improvement in Rail-Joints; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to joints for connecting the ends of railroad-rails together; and it has for its object to provide a joint which will require neither fish-plates nor bolts to effect a firm and secure union between two rails and at the same time will necessitate no alteration or change in the general form of the rails. In other words, when the joint between two rails is made the cross-sectional shape of the rails at the point of junction will be the same as that of the remainder of the rails.

I will now describe my invention so that others skilled in the art may manufacture and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of two rails joined together in accordance with my invention. Figs. 2 and 3 are vertical cross-sectional views on the lines II II and III III, respectively, of Fig. 1. Figs. 4 and 5 are perspective views of the meeting ends of the two rails.

Like symbols of reference indicate like parts in each of the figures.

In the drawings, A indicates one of the rails, said rail having a head 3, a web 4, and a base-flange 5. The web 4 is cut away, as at 6, leaving a depending portion 7, which is shouldered at the points 8 and has a V-shaped projection 9 extending from the lower side thereof. The base-flange 5 is also cut away on one side, leaving a portion 10 on the other side, which has an inclined upper side 10^a and a vertical inner side 10^b. The end of the portion 10 is marked 10^c and the end of the flange on the other side is marked 10^d.

A V-shaped groove or recess 12, having shoulders 12', is cut in the head 3 of the rail A and extends the length of the cut-away portion 6 of the web.

B indicates the rail to be joined to A. This rail has also a head 13, a web 14, and a

base-flange 15, corresponding in shape to the head, web, and flange of the rail A. The head 13 and web 14 are cut away, as at 16, to form a space to receive the projection 7 of the rail A, the web 14 being so cut as to leave shoulders 17 and a V-shaped recess 18, adapted to receive and interfit with the V-shaped extension 9 and the shoulders 8 of the said projection 7. The head of the rail B is cut away beyond the space 16, so as to provide a V-shaped projection having sides and shoulders 19', adapted to interfit with the V-shaped recess 12 and sides and shoulders 12' of the rail A. The base-flange 15 of the rail B is also cut away at one side, leaving the space 20, having the inclined upper side 20^a, the vertical longitudinal side 20^b, and the vertical transverse side 20^c, adapted to abut against and interfit with the sides 10^a 10^b 10^c when the ends of the two rails are brought together. The end of the flange on the other side of the rail is marked 20^d. This end abuts against the side 10^d of the other rail.

The manner of connecting the two rails together will be readily understood. The ends of the two rails are caused to approach each other laterally, the part 7 taking into and filling the space 16, and the V-shaped projection 9 fitting into the V-shaped recess 18, and the shoulders 8 resting firmly on the shoulders 17. This operation also brings the V-shaped projection 19 into interfitting engagement with the recess 12 and causes the shoulders 19' and 12' to rest firmly against each other. The portion 10 of the rail A will also be caused to fill the space 20 caused by the cutting away of the flange of the rail B, and the sides 10^a 10^b 10^c 10^d will be brought against the sides 20^a 20^b 20^c 20^d, respectively. The meeting edges of the two rails at their flanges are thus brought on lines which are not opposite to each other, constituting a strengthening element of the joint.

The space 16 is made somewhat longer than the projection 7, affording a space 21 to allow for expansion and contraction.

The advantages of my invention will be appreciated by those skilled in the art. The joint is simple in construction, inexpensive, and requires no special form of rail, but can be made with the ordinary form of rail in common use, a feature which will commend

it to both the maker of the rail and the railroad man, as it requires no alteration in the manufacturing appliances now employed.

I claim—

- 5 1. In a rail-joint, a rail having at its end a downwardly-projecting hook portion with a V-shaped projection thereon, said rail being undercut back of said hook portion and the undercut portion having a recess therein; in
10 combination with a second rail having at its end an upwardly-extending portion with a projection thereon adapted to interfit with said undercut portion and its recess of the other rail, and having also a cut-away portion
15 with a V-shaped recess forming a seat for the hook portion and the projection thereon of the other rail; substantially as described.
- 20 2. In a rail-joint, a rail having at its end a downwardly-projecting hook portion and a cut-away portion back of said hook portion and having its base-flange cut away at one side; in combination with a second rail having at its end an upwardly-projecting hook
25 portion and a cut-away portion adapted to interfit, respectively, with the cut-away portion and hook portion of the first rail, said second rail having its base-flange cut away
30 at one side similarly to the first rail; substantially as described.
3. In a rail-joint, a rail having at its end a downwardly-projecting hook portion and a cut-away portion back of said hook portion and having its base-flange cut away at one

side; in combination with a second rail having at its end an upwardly-projecting hook portion and a cut-away portion adapted to interfit, respectively, with the cut-away portion and hook portion of the first rail, said second rail having its base-flange cut away at one side similarly to the first rail; the hook portions and the cut-away portions of the two rails being provided with interfitting projections and recesses; substantially as described.

4. In a rail-joint, a rail having at its end a downwardly-projecting hook portion and a cut-away portion back of said hook portion and having its base-flange cut away at one side; in combination with a second rail having at its end an upwardly-projecting hook portion and a cut-away portion adapted to interfit, respectively, with the cut-away portion and hook portion of the first rail, said second rail having its base-flange cut away at one side similarly to the first rail; the hook portion of the first rail being less in length than the cut-away portion of the second rail so as to provide space for expansion and contraction of the two rails relatively to each other; substantially as described.

In testimony whereof I have hereunto set my hand.

ALBERT H. KNOPF.

Witnesses:

WM. GROH. RUNKLE,
HARRY KELLER.