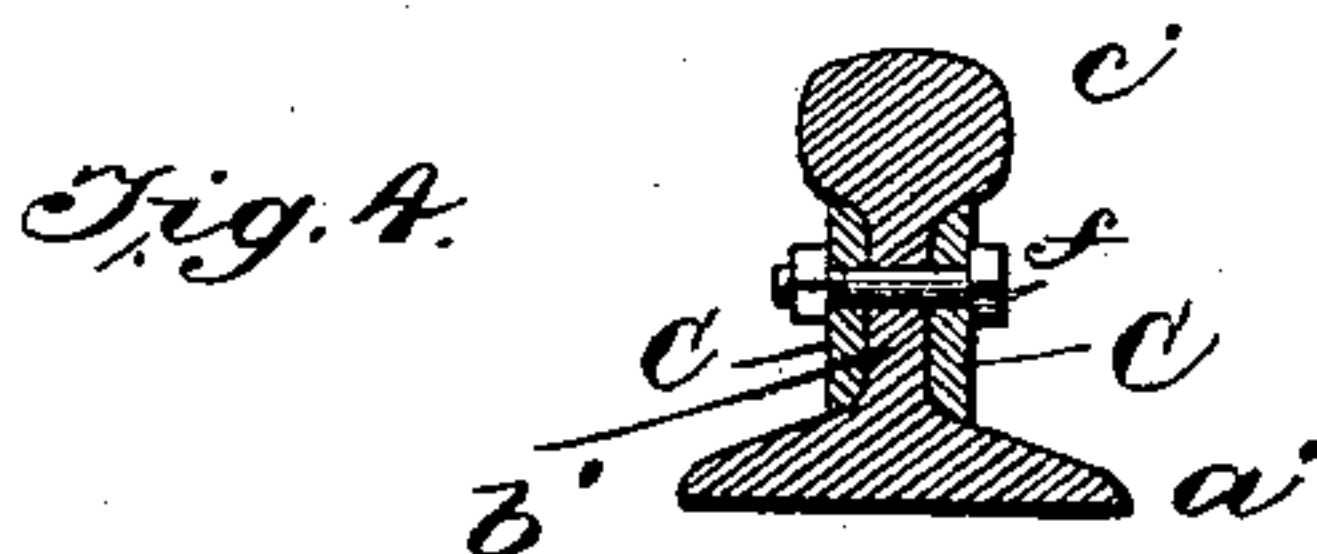
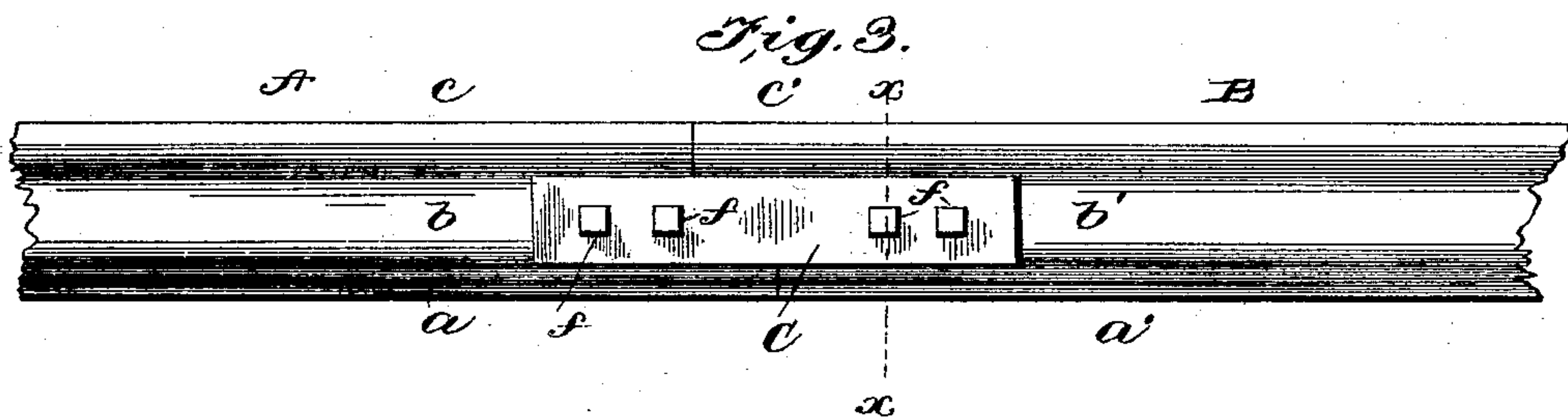
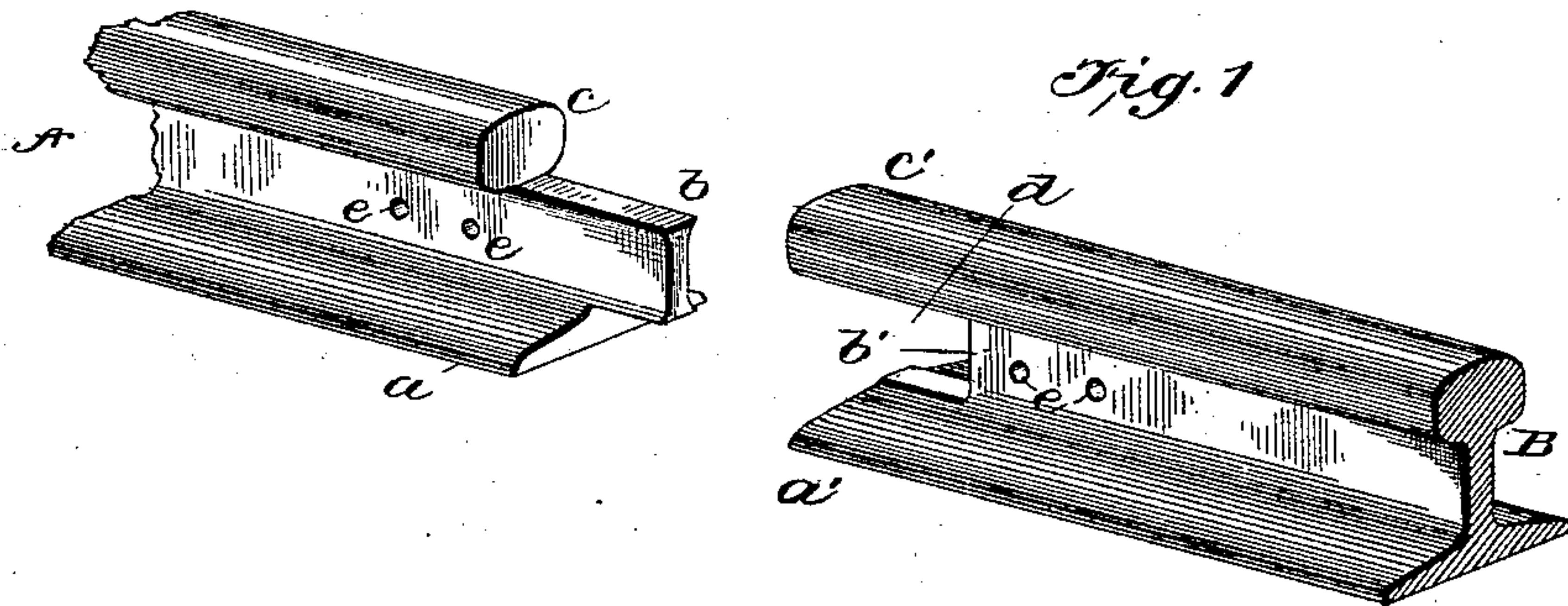


(No Model.)

R. MORRELL.
JOINT FOR RAILWAY RAILS.

No. 453,344.

Patented June 2, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
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JOINT FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 453,344, dated June 2, 1891.

Application filed November 11, 1890. Serial No. 371,007. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MORRELL, a citizen of the United States, residing at Summit, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Joints for Railway-Rails; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to joints for railway-rails, and has for its objects to provide a joint which will prevent each rail from moving independently of the adjacent rail with which it is connected, and at the same time to simplify and render the structure more effective in operation.

With these objects in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of the ends of two adjacent rails constructed in accordance with my invention, showing them separated a short distance. Fig. 2 is a view in side elevation of the ends of two adjacent rails in the positions they assume when forming the joint. Fig. 3 is a view similar to Fig. 2, showing the complete joint with the fish-plate secured thereto. Fig. 4 is a cross-section on the line $x x$ of Fig. 3.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letters, A and B represent portions of two adjacent rails composed of the usual bases $a a'$, webs $b b'$, and heads $c c'$. The base a of rail A has a portion removed from the end, which is to form part of the joint, and the head c of the same rail has a somewhat longer portion of the same end removed, leaving the web b intact and projecting in the form of a tongue beyond the base and head. The base a' of

rail B has a portion removed from its end, and the web b' has a slightly-longer portion removed, leaving the head c' intact and forming a notch d to receive the web b of the rail A when the two rails are brought together, as shown in Fig. 2, the ends of the bases, webs, and flanges of each rail being cut squarely off, as clearly shown. When the rails are brought together with the projecting web b entering the notch d , the head c' of rail B rests upon the top of the web b of rail A, and the base a' rests under said projecting web b , the ends of the respective bases, webs, and heads abutting squarely against each other with the joint between the heads in a different vertical line from that between the webs and bases. In this position it is impossible to raise or depress the end of either rail without correspondingly raising or depressing the adjacent end of the other rail, and the strain due to passing trains is so distributed that at no time is the strength of base, web, or head compelled to act alone in supporting the weight, the joints, as before stated, being broken, so that the joint between the ends of the head is supported with the full strength of the web and base, the joint between the ends of the webs by the full strength of the base and head, and the joint between the ends of the base by the full strength of the web and head. If the heads and bases were cut on the same vertical line, the whole strain on the joint would fall upon the web. Bolt-holes e are provided in the webs a and b to receive bolts f , by means of which a fish-plate C is secured on each side of the joint, as shown in Figs. 3 and 4.

As before stated, the projecting end of web b , entering the notch d in the rail B, prevents independent vertical movement of adjoining rails, and the fish-plates secured on each side of the rails at the joint prevents independent lateral movement of the rails.

In laying the rails the ends are brought into position by lateral movement, the projecting end of the web b being entered into the notch d from either side thereof, which is rendered possible by cutting the ends of the adjoining bases, webs, and flanges squarely at right an-

gles to the length of the rails, and the fish-plates overlapping the ends of the webs and bolted securely thereto prevent lateral displacement. The construction herein described also permits the slight endwise motion of the rails due to expansion and contraction by heat and cold, provision being made for such movement in any usual manner—such, for instance, as by making the
10 bolt-holes slightly larger than the bolts.

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

The joint for railway-rails herein described,
15 in which are combined the following elements: the rail A, having a portion of its base a and a slightly longer portion of its head c cut away, leaving its web b intact and forming a tongue projecting beyond the base and head,

the rail B, having a portion of its base a' and 20 a slightly longer portion of its web b' cut away, forming a notch d to receive the projecting end of the web b , the ends of the bases, webs, and heads being cut off squarely at right angles to the length of the rails, and the 25 joints between the ends of the heads, bases, and webs falling in different vertical planes, whereby said joints are “broken” and the strain thereon so distributed that it will fall at no time upon a single member (web, base, 30 or head) of the rail, as set forth.

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

ROBERT MORRELL.

Witnesses:

SHIPLEY BRASHEARS,
SHIPLEY BRASHEARS, Jr.