(No Model.)

C. FISHER.

RAIL JOINT.

No. 360,673. Patented Apr. 5, 1887.

Fig. 1.

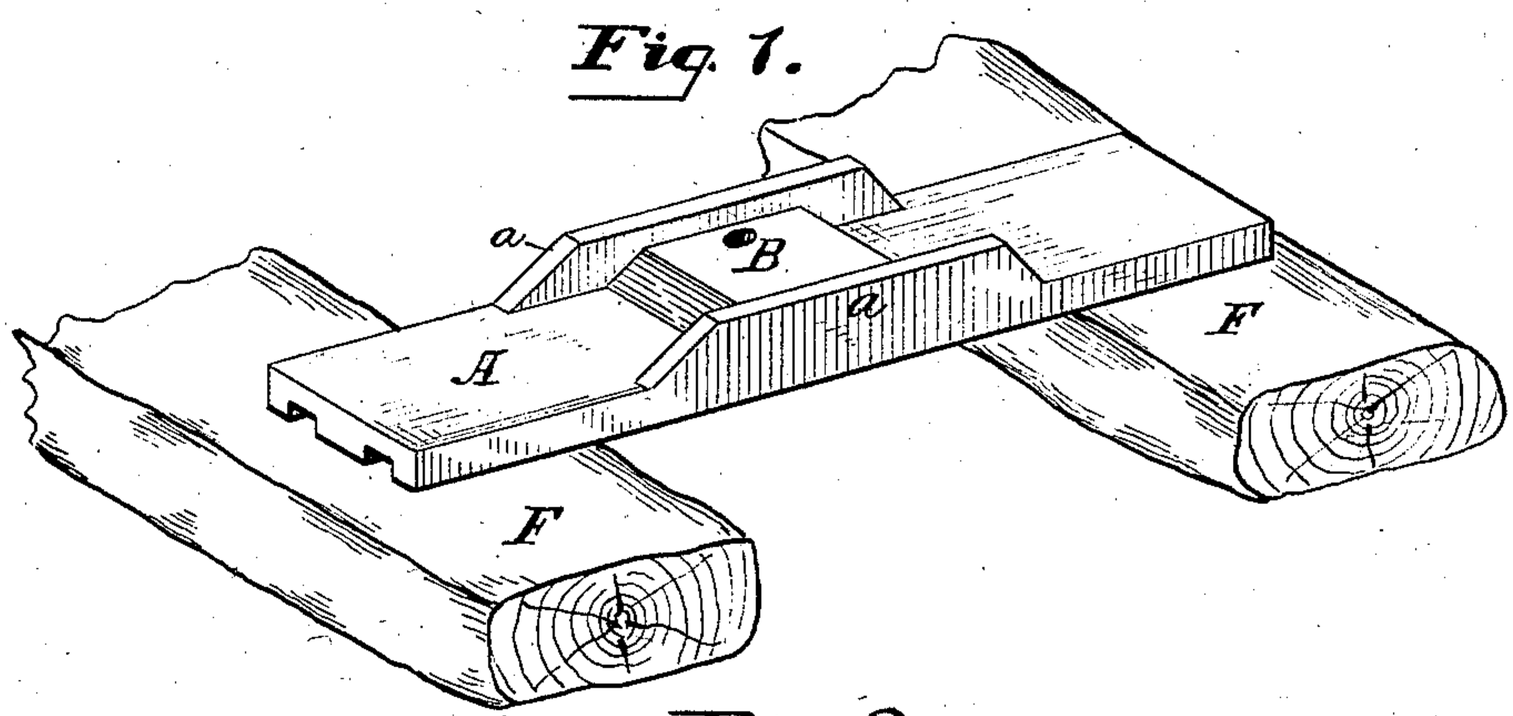


Fig. 2

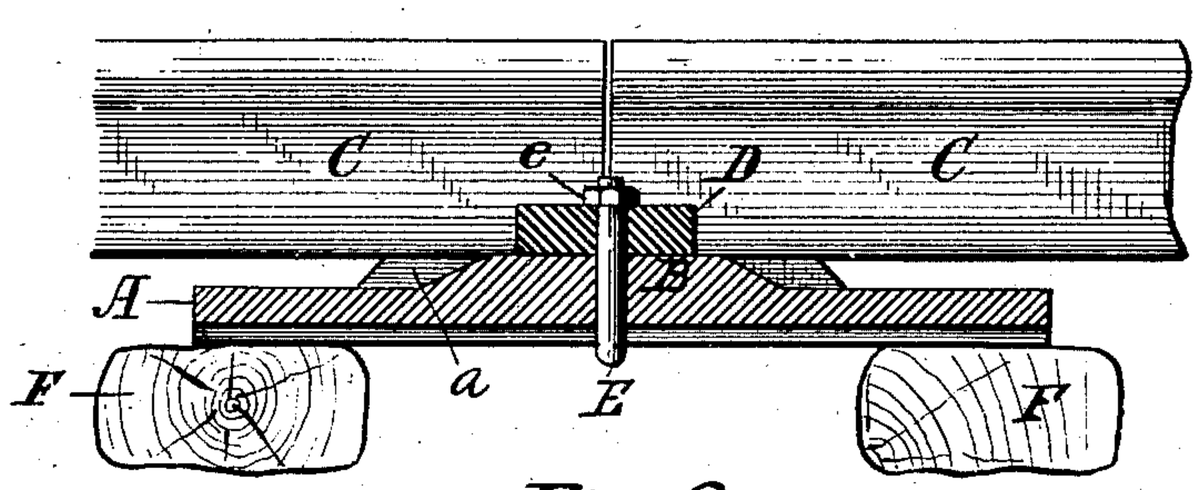


Fig. 3.

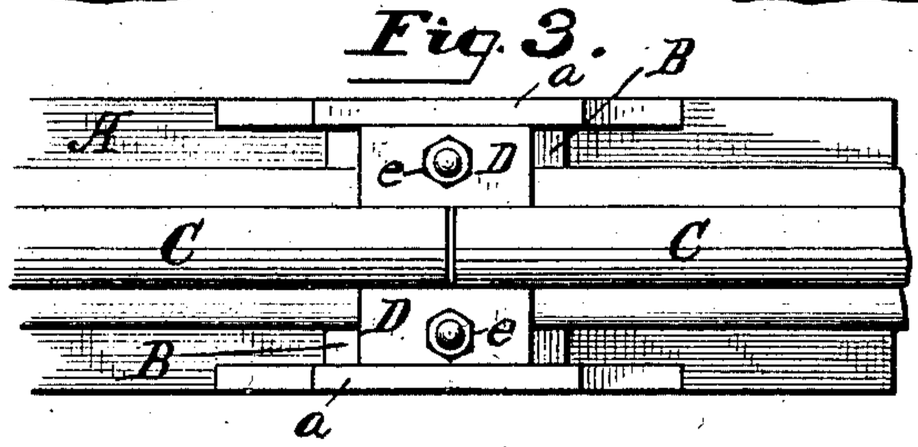
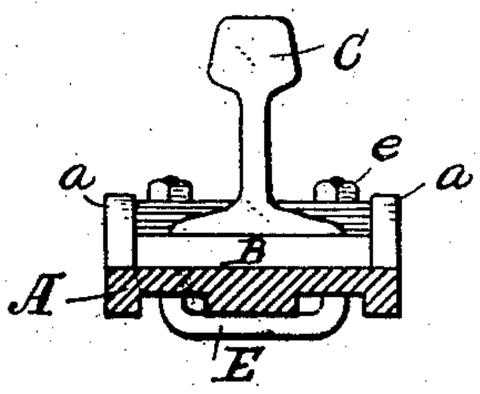


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CLARK FISHER, OF TRENTON, NEW JERSEY.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 360,673, dated April 5, 1887.

Application filed May 17, 1886. Serial No. 202,415. (No model.)

To all whom it may concern:

Be it known that I, CLARK FISHER, a citizen of the United States, residing at Trenton, in the County of Mercer, and State of New Jersey, have invented certain Improvements in Rail Joints, of which the following is a specification.

This invention is an improvement upon that set forth in United States Letters Patent No. 19,555, granted March 9, 1858, to M. Fisher of Trenton, aforesaid, and known as the "Fisher Joint;" and it relates to the class of devices known as joints or splices for the reception of the contiguous ends of railroad rails and commonly called "rail joints," the same being devices for connecting the rails and for supporting them both from beneath and laterally.

The Fisher rail joint referred to consists of a sole-piece or chair provided with longitudinally extending vertical flanges upon each side of its upper surface, against which flanges and upon the upper surface of which sole piece clamps or fore-locks to grasp the bases of the rail ends rest, the said fore-locks being held down upon the rail bases and sole piece by one or more bolts passing through the whole, as by a reference to the Letters Patent referred to will more fully appear.

Formerly the sole pieces of these joints were made as a flat or level plate of uniform thickness, and in practical use it was found that, under their passage, the pressure or weight of the wheels of trains came first upon one end of the sole-piece, the resulting tendency being to spring the other end and thereby loosen the fastenings.

To obviate the foregoing disadvantage I devised the rail joint described and claimed in United States Letters Patent No. 214,032, granted to me April 8th, 1879, in which the invention consisted in giving to the chair or sole piece of the Fisher joint a slightly arched or curved form in the direction of its length, the convexity being on top, so that the butts or meeting extremities of the rails came together and rested upon the highest part of the arched sole-piece, with the result that the weight passing over the joint was from first to last thrown upon the center thereof, thereby distributing the pressure evenly throughout the joint and to the ties or other bearings upon which the ends of the sole-piece rested.

Some disadvantages in this arrangement are found in practice; these are that while the supporting ties are in the same horizontal plane on their upper bearing surfaces, the ends of the arched sole-piece or beam have a bearing on said ties only upon their extremities, a condition tending to cause the supporting ties to roll outwards, because the form of this arched beam on its under surface is similar to and parallel with its upper curved surface, and therefore it cannot bear evenly upon the plane surfaces of the ties. The central part of said beam or sole piece, moreover, which should be the strongest since it acts as a bridge from one tie to another, is, when not thicker than the parts which rest on the ties, weakened by the holes in it necessary for the vertical bolts.

The object of my present invention is to obtain in a flat or level chair or sole-piece the advantages incident to a chair, sole-piece, or beam arched in the direction of its length and adapted to support the rails beneath their intersections upon its highest portion and also to increase the strength of the central part of the beam, and these objects I obtain by superimposing upon the central portion of the sole-piece or chair of the Fisher rail joint between the flanges thereof a filling block or liner upon which the meeting extremities of the rails rest and upon which the forelocks are superimposed, all substantially as hereinafter set forth.

The rail joint embodying my invention is represented in the accompanying drawings and described in this specification, the particular subject matter claimed as novel being hereinafter definitely specified.

In the drawings,

Figure 1 is a view in perspective of a sole piece or chair embodying my improvements.

Figure 2 is a longitudinal side elevation of a rail joint embodying my improvements, section being supposed in the plane of the nearest arm of a connecting U-bolt.

Figure 3 is a top plan view of the rail joint of figure 2, and figure 4 a transverse sectional elevation in the plane of the dotted line *x*-*x* of figure 3, the rail not being in section.

Similar letters of reference indicate corresponding parts.

In the drawings, A is the sole-piece or chair, and *a* the laterally extending vertical flanges of the said chair; B is the central filling block

or liner, which may be either cast, or forged, or rolled integral with the sole-piece, or be applied as a separate member thereto. It is preferably broad enough to fill the space between the flanges and long enough to afford a sufficient bearing for the rail ends. C are the rail ends; D the fore-locks and E a connecting U-bolt provided with nuts *e*. F are the ties. The chair is throughout its length flat on its under surface in the direction of its length, thereby securing to the joint as an entirety the advantage of a level and extended bearing upon each of the ties on which its extremities rest, and also by virtue of the liner a thickened bearing part, so to speak, for the rail ends, which increases its strength and prevents the rails from resting on other than the central portion of the beam. More than one U-bolt may, if desired, be employed, or separate and independent single bolts may be used.

Having thus described my invention, I claim:

1. In combination with a sole-piece or chair, a liner or filling block superimposed upon its carrying surface, rail ends resting upon said liner, fore-locks, and a connecting bolt or bolts, substantially as and for the purposes set forth.

2. In combination with a sole piece or chair, a liner or filling-block superimposed upon its upper or carrying surface, rail ends resting upon, attached to, and solely supported by said liner, forelocks, and a connecting bolt or bolts, substantially as and for the purposes set forth.

In testimony whereof I have hereunto signed my name this 13th day of May, A. D., 1886.

CLARK FISHER.

In the presence of
EDW. T. GREEN,
EDWARD W. EVANS.