





# UNITED STATES PATENT OFFICE.

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## FISH-PLATE.

SPECIFICATION forming part of Letters Patent No. 771,119, dated September 27, 1904.

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*To all whom it may concern:*

Be it known that I, PHILIP H. BIEMAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have made a certain new and useful Invention in Fish-Plates; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of my invention as applied. Fig. 2 is a cross-section of the same. Fig. 3 is a perspective view of the plate *d*.

The invention relates to means for connecting railroad-rails at the joints; and it consists in the novel construction and combination of parts, as hereinafter set forth.

The object of the invention is to secure the adjacent ends of the rails together in such an even and firm manner that the vibrations due to the passage of the wheels over the joint will not cause such movement of the ends of the rails relative to each other as will cause them to become unduly battered.

In the annexed drawings the letter *a* designates the adjacent ends of two rails; *b*, the inner joint-plate; *c*, the outer joint-plate, and *d*, the base joint-plates. The ordinary fish-plate bolts are indicated at *z*.

The outer joint-plate *c* comprises a portion *d*, which is relatively upright to the base portion *f*. This upright portion is formed with a longitudinal concave channel *g* in its upper inside part to receive the outside swell of the head of the rail. Below this channel the part *h* is designed to enter the longitudinal side recess of the web portion and to fit against the upper portion of the rail-base on the outer side. The bottom of this part *h* is inclined, as shown at *k*, to suit the bevel of the rail-base and terminates in a shoulder *m*, extending to the bottom of the foot or base portion *f*. This foot or base portion projects

from the upright portion, as shown, and terminates laterally in the upwardly and outwardly inclined bearing-surface *p*. The base portion *f* is provided with holes for the passage of bolts *v*. The upper surface of this joint-plate is even with the top of the rail.

To the inner sides of the rails at their joint is applied the inner plate *b*, which is formed without the channeled upper part and is formed with a beveled bearing *s*, which fits against the under side of the inside swell of the head of the rail. Its base *t* is provided with an inside shoulder *v* to cover in the edge of the rail-base, its outer contour being similar to that of the base of the rail.

The base joint-plate *d* extends transversely under the outer and inner joint-plates and the base of the rail. It is a broad plane plate having at its inner edge an upward-turned hook-flange 5, fitting neatly the lower end of the inner joint-plate and extending up a short distance on the beveled upper surface of the base portion 4. At the outer edge of the base joint-plate is an upward-extending flange 6, which is inclined outward to conform to the bevel of the outer bearing edge of the base portion of the outer joint-plate. The inner hook-flange 5 and the outer inclined flange 6 are at such distance from each other that the wedging action consequent upon the pressure of the bolts *v* when they are forced home by their nuts, which bear on the upper surface of the base *f*, crowds the outer and inner joint-plates toward each other and causes them to bear closely and forcibly against the sides of the rails, holding them firmly in relative position.

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

1. The base-plate for rail-joints, consisting of the broad plane transverse base portion having at its inner edge the upward and inward turned hook-flange, and at its outer edge the upward and outward inclined wedging-flange, substantially as specified.

2. In a railway rail-joint, the combination

with an inner joint-plate having a shouldered  
base portion, of the outer joint-plate having  
an upward and outward inclined lateral sur-  
face, and the broad transverse base-plate hav-  
5 ing the inner hook-flange and the upward and  
outward inclined wedging-flange, substan-  
tially as specified.

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

PHILIP H. BIEMAN.

Witnesses:

JOHN E. CONNOR,  
TIMOTHY BUCKLEY.