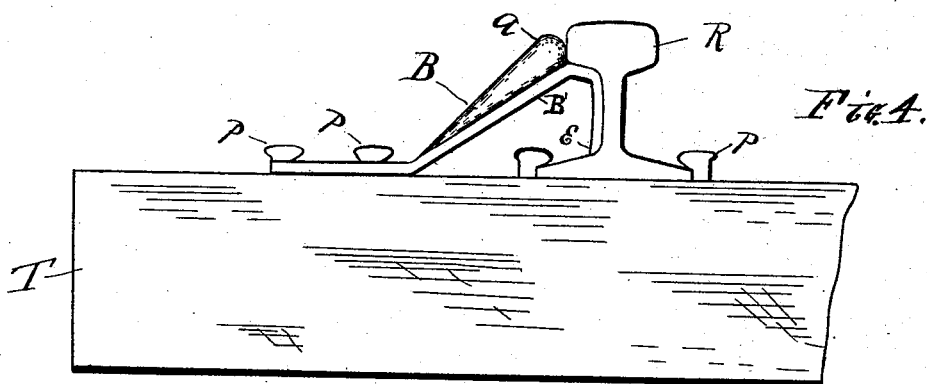
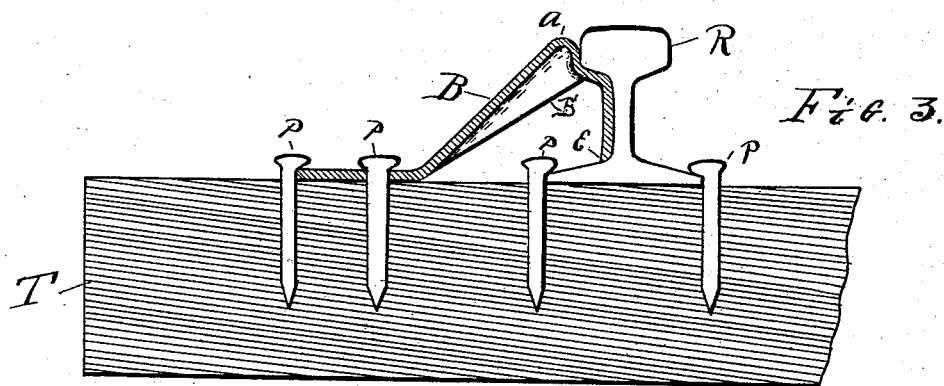
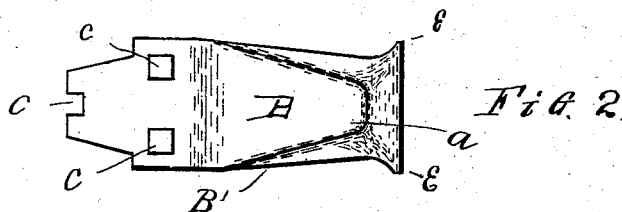
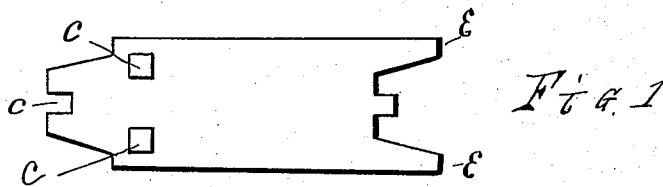


(No Model.)

W. E. WILLIAMS.  
RAILWAY RAIL BRACE.

No. 491,152.

Patented Feb. 7, 1893.



Witnesses

L. W. Murphy.  
J. Murphy.

Inventor

W. E. Williams

# UNITED STATES PATENT OFFICE.

WILLIAM ERASTUS WILLIAMS, OF CHICAGO, ILLINOIS.

## RAILWAY-RAIL BRACE.

SPECIFICATION forming part of Letters Patent No. 491,152, dated February 7, 1893.

Application filed October 7, 1891. Serial No. 408,048. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ERASTUS WILLIAMS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Railway-Rail Braces, of which the following is a specification.

The object of my invention is to produce a brace out of wrought material whereby the fibers of the metal developed in rolling shall be longitudinal with the brace thereby preventing the brace from breaking or cracking crosswise which is an objection to some methods of rail brace manufacture and to produce a brace that will be a strong brace and require as little material as will make a successful brace and one that can be cheaply manufactured. I attain these objects by the construction illustrated in the accompanying drawings.

Figure 2, is a plan view of the brace itself. Fig. 4 is a side view of the brace rail and tie in position. Fig. 3 is a sectional side view through the center of the brace. Fig. 1 is the bar cut off into the form ready for bending up into the brace.

The material for the brace is cut from a plate or bar into the form of Fig. 1 the points E, E, that rest on the base of the rail and have no severe strain upon them are virtually made of the rear end of the piece that preceded it thereby effecting a saving of material. The piece is then placed in a suitable former and the base or portion which fits on the tie is held firmly while the main body is curved or bent upward and a shoulder is formed to rest against the rail head by swaging or forging up the central portion to fit the side of the rail head while the forward end is curved downward forming a rest on the base of the rail for the purpose of holding the shoulder up to its work against the rail head. The depending portions on each side of the central strengthening rib are supplemental strengthening ribs at each side of the center of the brace. The swaging up of the central portion not only serves to form the shoulder but stiffens the shank B' by forming the central strengthening rib B of the brace and also contracts it so as to make it narrow over the base of the rail, more readily permitting the

spikes to be driven adjacent to the rail at the side or underneath the brace itself.

In lieu of swaging upward the central portion of the shank of the brace the sides may be swaged upward to form shoulders and corrugations for stiffening the shank but as the effect is the same I do not want to be limited to either construction.

I am aware that braces have been made out of blanks by striking up a shank and shoulder to form the brace in which case the shank itself was swaged entirely up out of the plate or blank while the sides and ends of the blank remained in about their original position while in my case the whole bar is bent upward to form the brace the shoulder only being forged and the end of the bar is then bent downward forming the rest on the base of the rail. While in this case the sides of the blank form the rest on the base of the rail. Rail braces have been made out of a bar by bending up one end to rest against the rail head but not with an extension of the bar curved downward resting on the base of the rail for the purpose of holding the shoulder in position. And rail braces have been made, similar in appearance to mine out of a T rail section by forging the height of the rail into the length of the brace. But in each case the shoulder for the rail head and the foot resting on the base of the supported rail are made out of some specific flange or part of the rail section and not by the continuous bar being forged to form the shoulder and, thence down to form the rest on the supported rail as in my case.

In the drawings, "a" designates the crown of the brace.

c, c, c, designate spike holes—R the head of the rail—P, P, P the spikes and B', B', supplemental strengthening ribs at either side of the center of the brace, each side of the central circular rib B on the top.

What I claim is

1. A rail brace constructed of a flat piece of metal having a raised portion which is adapted to rest against the side of the rail head, and a strengthening rib extending along the brace between its ends at either side of the center, substantially as described.

2. A railway rail brace constructed sub-

stantially out of a plate or bar with a bearing on the tie thence bent upward and forward to a bearing against the rail head and thence bent downward with the ends resting on the  
 5 base of the rail said upward and forward bent portion between the tie and the rail head compressed laterally to add stiffness and to permit the spikes to be driven into the tie against the base of the rail adjacent to and  
 10 underneath said brace substantially as shown and described.

3. A railway rail brace made out of a plate or bar with a bearing on the tie thence bent forward and upward to a bearing against the  
 15 rail head with a shoulder forming part of said bearing made by swaging up the central portion of said bar and the forward end of said bar bent downward resting on the base of the rail substantially as shown and described.

20 4. A railway rail brace made from a plate or bar with a bearing on the tie thence curved or bent upward and forward to a bearing against the rail head with a shoulder formed by swaging the bar and with the said upward  
 25 extension between the tie and rail head stiffened by swaging upward a portion of the bar and with an extension of the bar bent downward resting on the base of the rail substantially as shown and described.

5. A railway rail brace constructed substantially with a bearing on the tie thence bent  
 30 upward to a bearing against the rail head and with an extension bent downward resting on the base of the rail said brace being formed of a plate or bar said plate or bar cut so that  
 35 the points at one end of the piece overlap the end of the other piece thereby effecting a saving of material substantially as shown and described.

6. A rail brace constructed of a piece of flat  
 40 metal and having a central raised portion and a crown, and a supplemental strengthening rib along the brace between its ends and having its end bent down beneath the crown, to rest against the flange of the rail, substan-  
 45 tially as described.

7. A railway rail brace formed from a blank substantially as described, with a shank and shoulder bearing against the rail head struck  
 50 up from the body of said blank and the forward end of said blank bent downward transversely of its length forming the rest on the base of the supported rail as and for the purpose described.

WILLIAM ERASTUS WILLIAMS.

Witnesses:

M. B. TAYLOR,  
 H. E. JAYNES.