

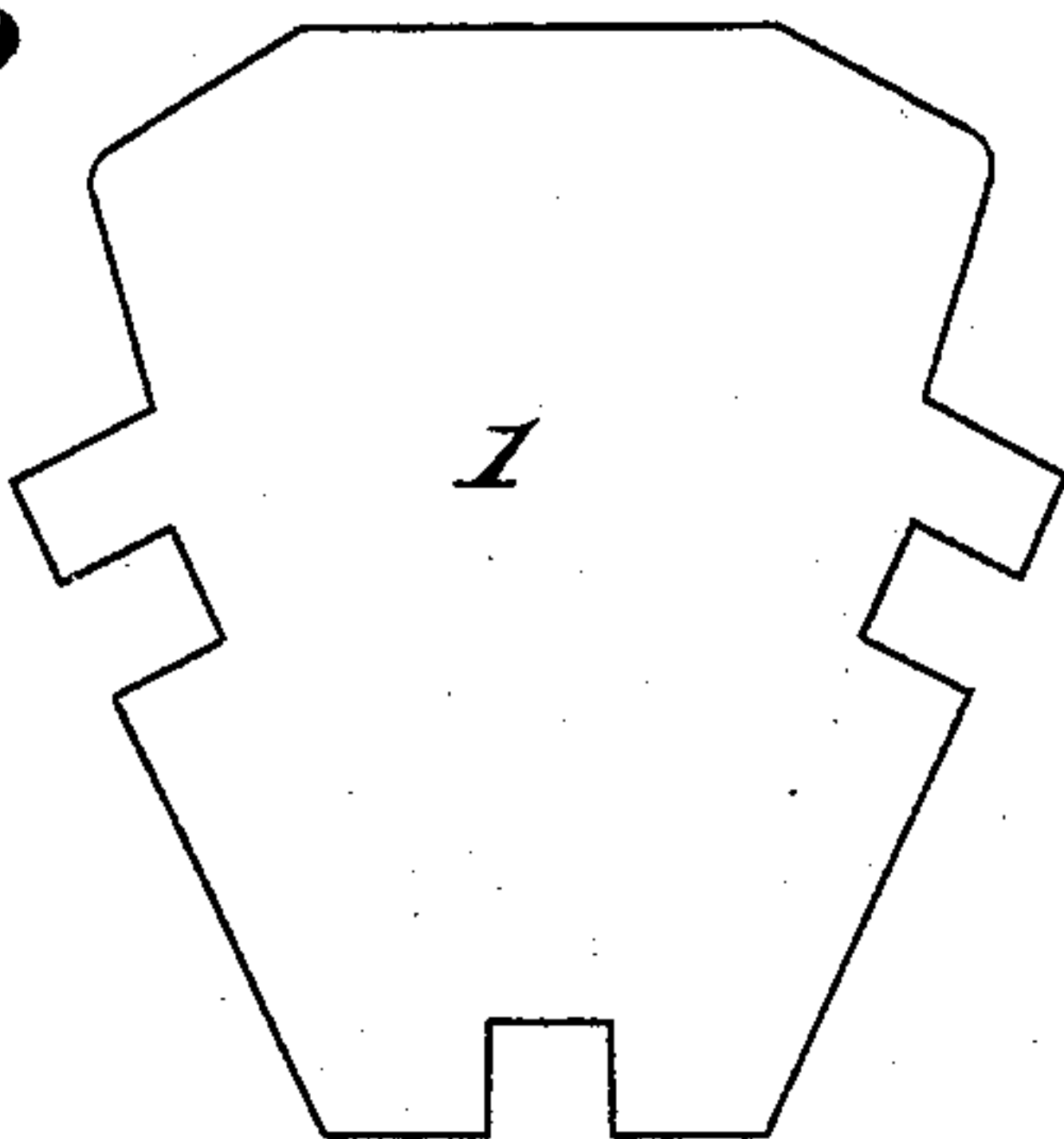
(No Model.)

F. C. WEIR & C. PARTINGTON.  
RAIL BRACE.

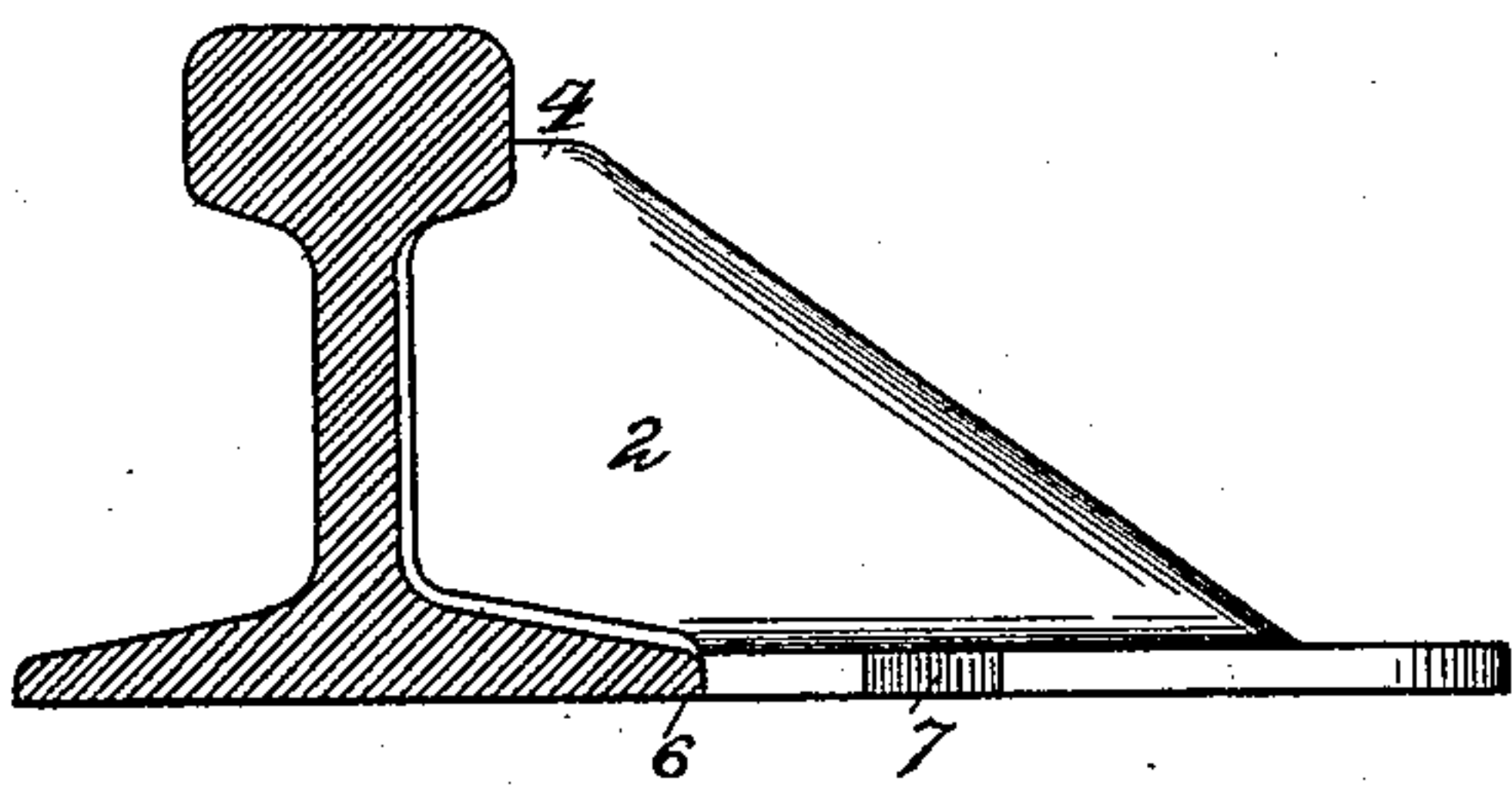
No. 407,753.

Patented July 23, 1889.

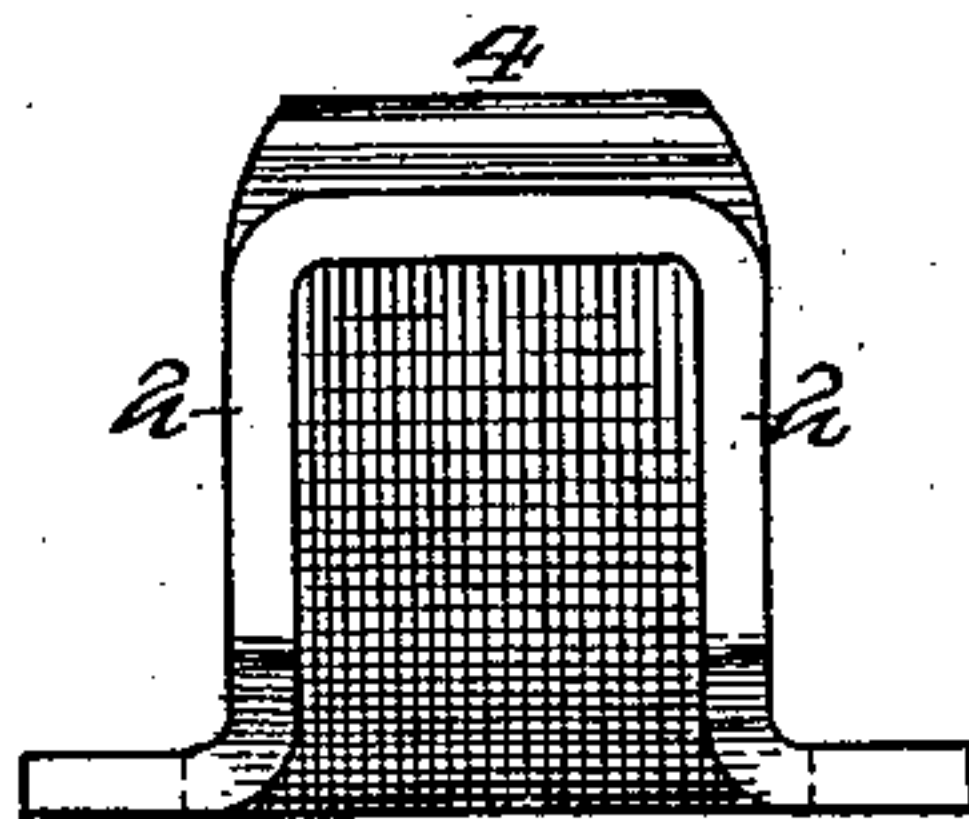
*Fig. 1.*



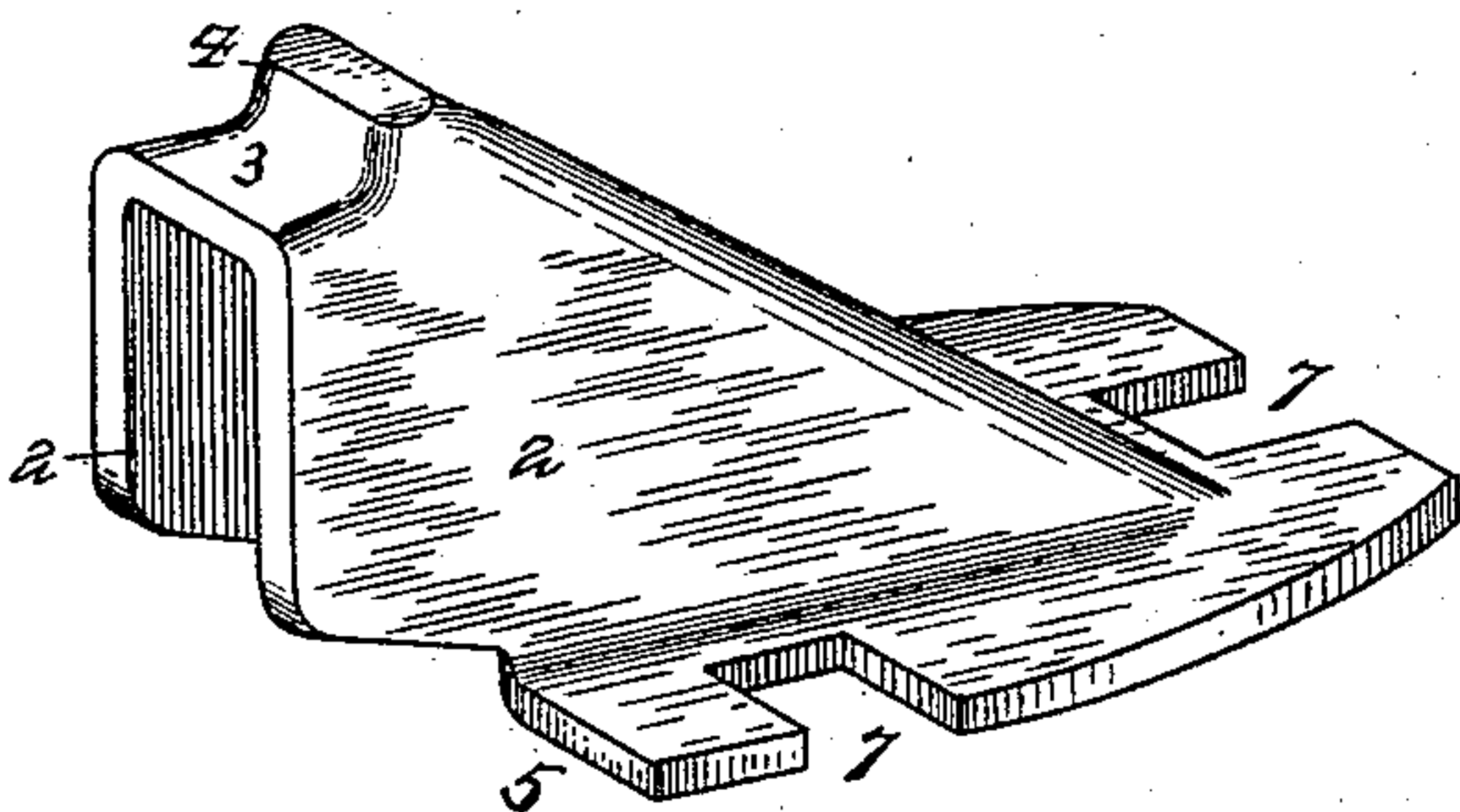
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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*Attest*

*Watson Sims*  
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# UNITED STATES PATENT OFFICE.

FREDRIC C. WEIR AND CHARLES PARTINGTON, OF CINCINNATI, OHIO, ASSIGNORS TO THE WEIR FROG COMPANY, OF SAME PLACE.

## RAIL-BRACE.

SPECIFICATION forming part of Letters Patent No. 407,753, dated July 23, 1889.

Application filed February 18, 1889. Serial No. 300,338. (No model.)

*To all whom it may concern:*

Be it known that we, FREDRIC C. WEIR and CHARLES PARTINGTON, citizens of the United States, and residents of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Rail-Braces, of which the following is a specification.

The object of our invention is to provide a cheap strong brace which can be struck up from sheet metal shaped and fitted so as to abut chiefly the head of the rail, the features of which will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a blank from which the brace is struck up. Fig. 2 is a side elevation of the rail-brace in position for use. Fig. 3 is a front elevation of our brace. Fig. 4 is a perspective view of the same.

In operation the principal strain is upon that portion of the brace which abuts the head of the rail. If a brace be struck up from sheet metal to have the edges of the metal abut against the head, they are apt to wear off. It is desirable, therefore, to have this shoulder or supporting portion made from the web of sheet metal, thereby furnishing a plane shoulder. This we accomplish as follows:

1 represents the blank, from which the brace is struck up by suitable dies in the form shown in Fig. 4. By making the sides 2 vertical the shoulder 3 is formed by compressing the metal down, forming the lug 4. The height of this shoulder forming this lug should be comparatively slight, yet enough to abut the lower portion of the edge of the rail, as shown in Fig. 2, leaving a sufficient clearance above to allow badly-worn wheels to pass over it without touching it.

5 represents the bottom shoulders, which abut the flange 6 of the rail.

7 represents slot-openings for spikes, which we prefer to cut when the blank is formed.

Attempts have hitherto been made to make a V-shaped sheet-metal brace; but this is objectionable, as the V form does not furnish metal enough to form the plane shoulder 3; but by making the sides vertical this deficiency is obviated and a stronger and more durable brace obtained. It is not new to form cast-metal braces of an oval or V-shaped form, having the shoulder formed somewhat similar in appearance to ours; also, sheet metal has been struck up in a V-shaped form, forming the shoulder of the edges of the metal; but such are different from our invention, the cast brace being costly and not as cheap and strong as ours, and the latter does not have the proper form of shoulder, as before explained. The shoulder 3 can be properly formed only by having the sides of the brace square or vertical, so that the die which strains the metal will firmly grasp the metal plate and hold it so as to be fed in by the strain of the die alone, and leave sufficient metal to form the shoulder or bridge 3, which constitutes the seat of the brace under the head of the rail.

It is obvious that the point of a V-shaped die will commence its pressure upon the metal with a very wide distance between the point of the top die and the sides of the bottom die, so that it will be impossible to hold the metal in position with the necessary degree of accuracy to produce a brace with a properly-formed bridge or shoulder for abutting squarely against and beneath the head of the rail.

By constructing the brace with vertical sides and bringing the bridge or shoulder 3 across between said vertical sides we are enabled to use a much thinner plate than can be employed in either the cone or arch shaped brace, made of heavier metal, because squarer corners can be made and closer flanges without unduly straining the metal, thus enabling the fastening-spikes to be placed more closely to the brace than is otherwise



erwise practicable, and at the same time provide a perfectly level seat for the brace on the rail-tie.

Having described our invention, what we  
5 claim is—

1. A railway-brace made from a blank struck up to form the vertical sides 2 and plane shoulder 3, substantially as specified.

2. A railway-brace made from a blank  
10 struck up to form the vertical sides 2 and hav-

ing the plane shoulder 3 and the bottom shoulders 5, substantially as specified.

In testimony whereof we have hereunto set our hands.

FREDRIC C. WEIR.  
CHARLES PARTINGTON.

Witnesses:

E. E. WOOD,  
T. SIMMONS.