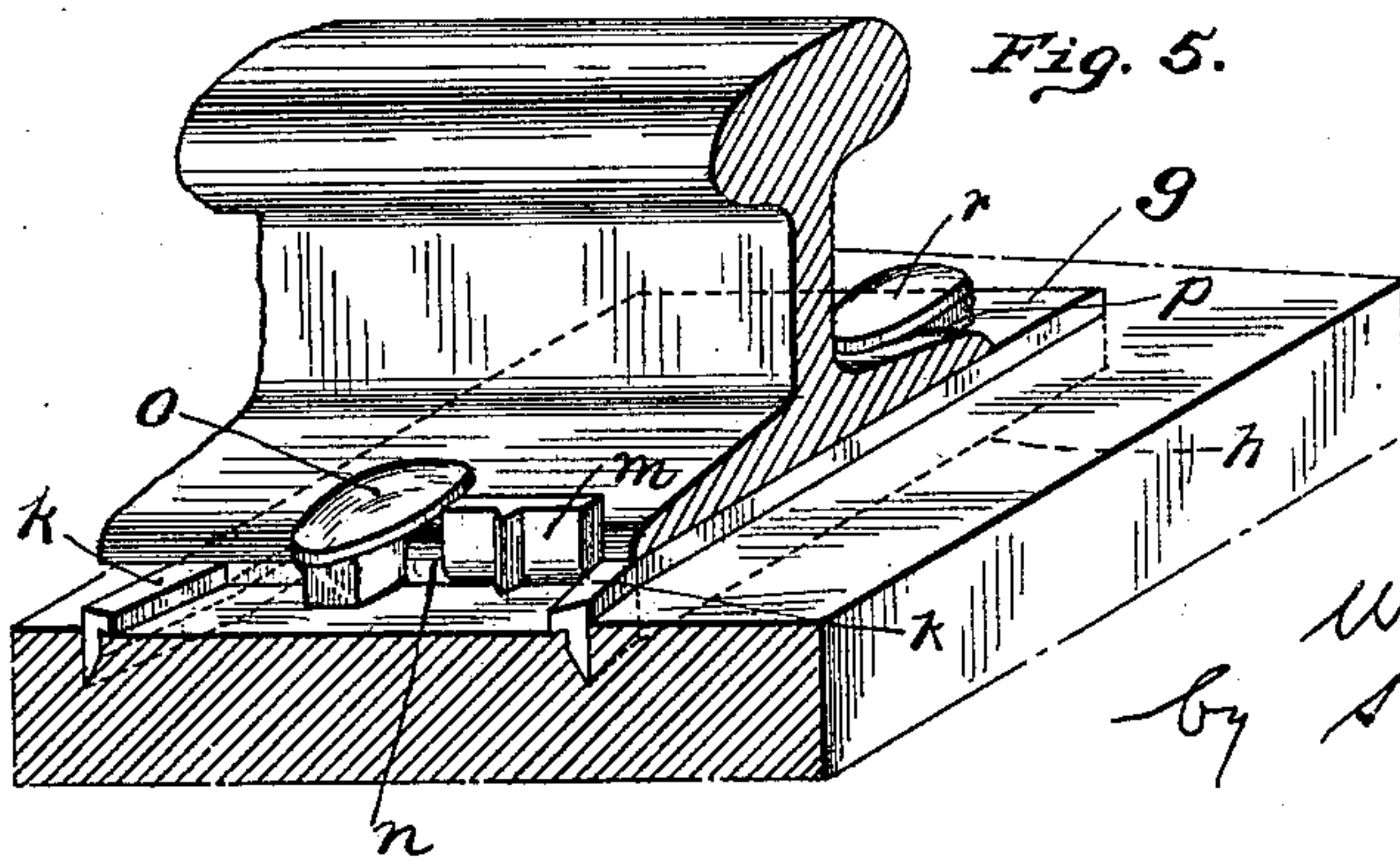
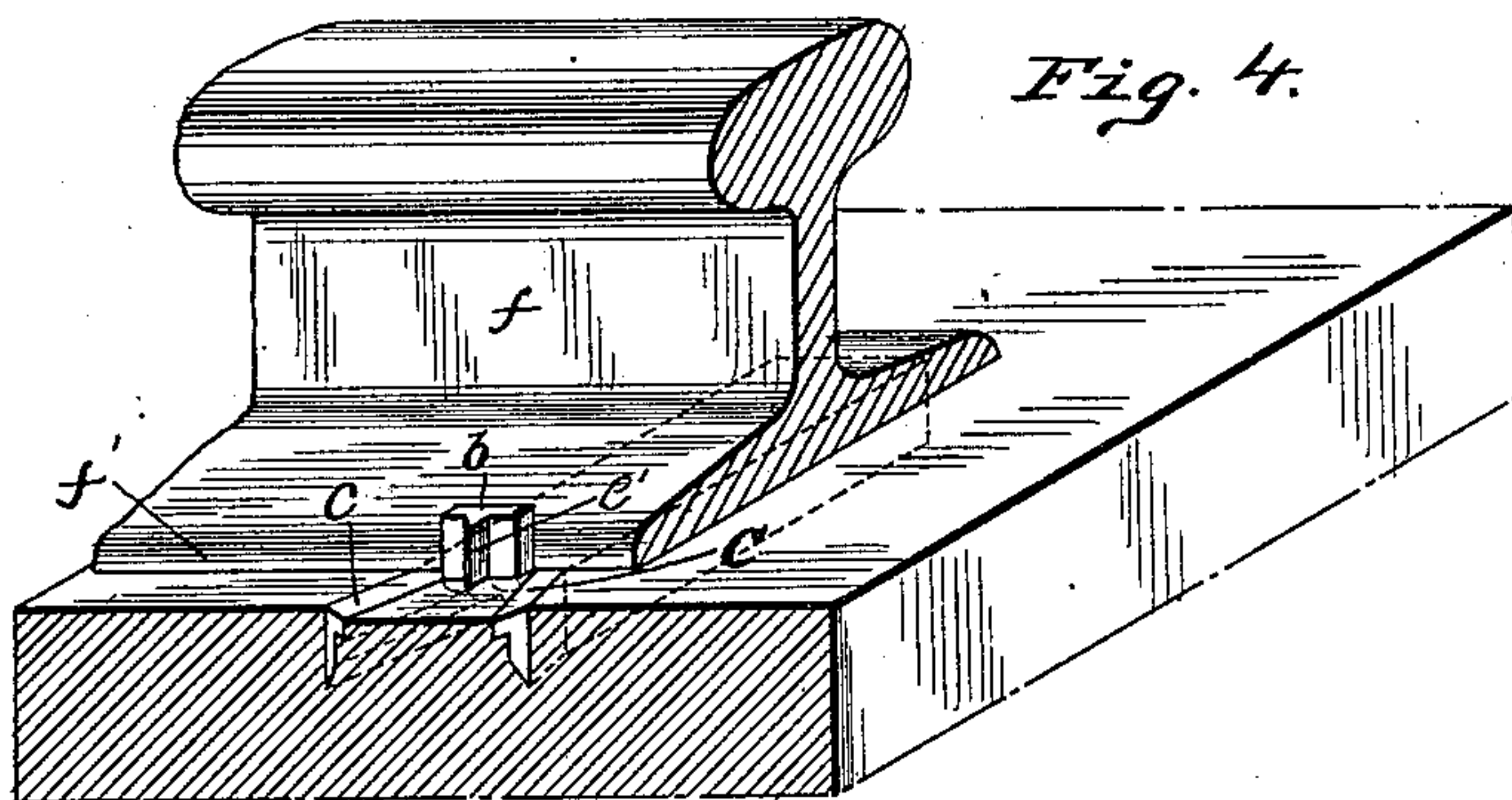
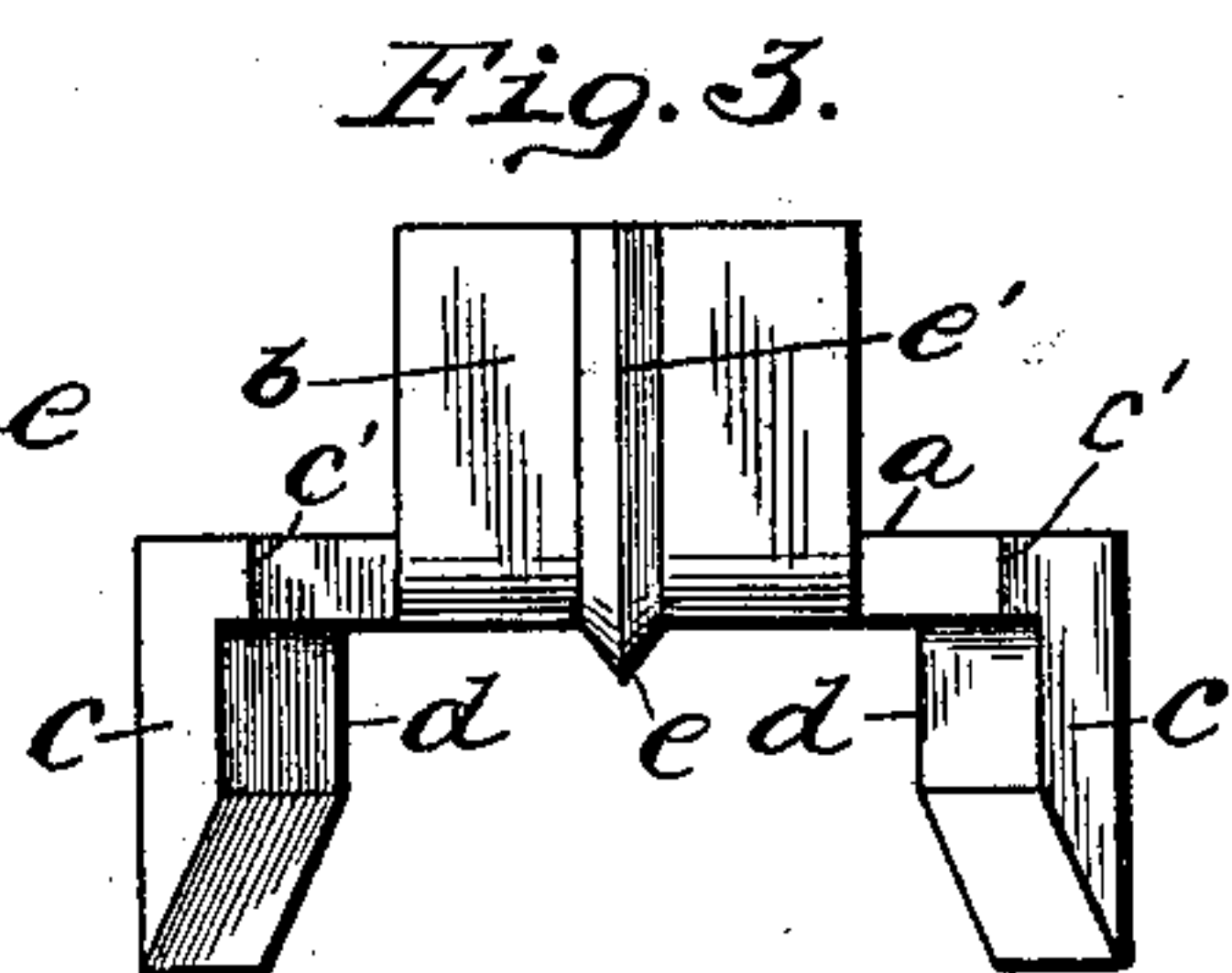
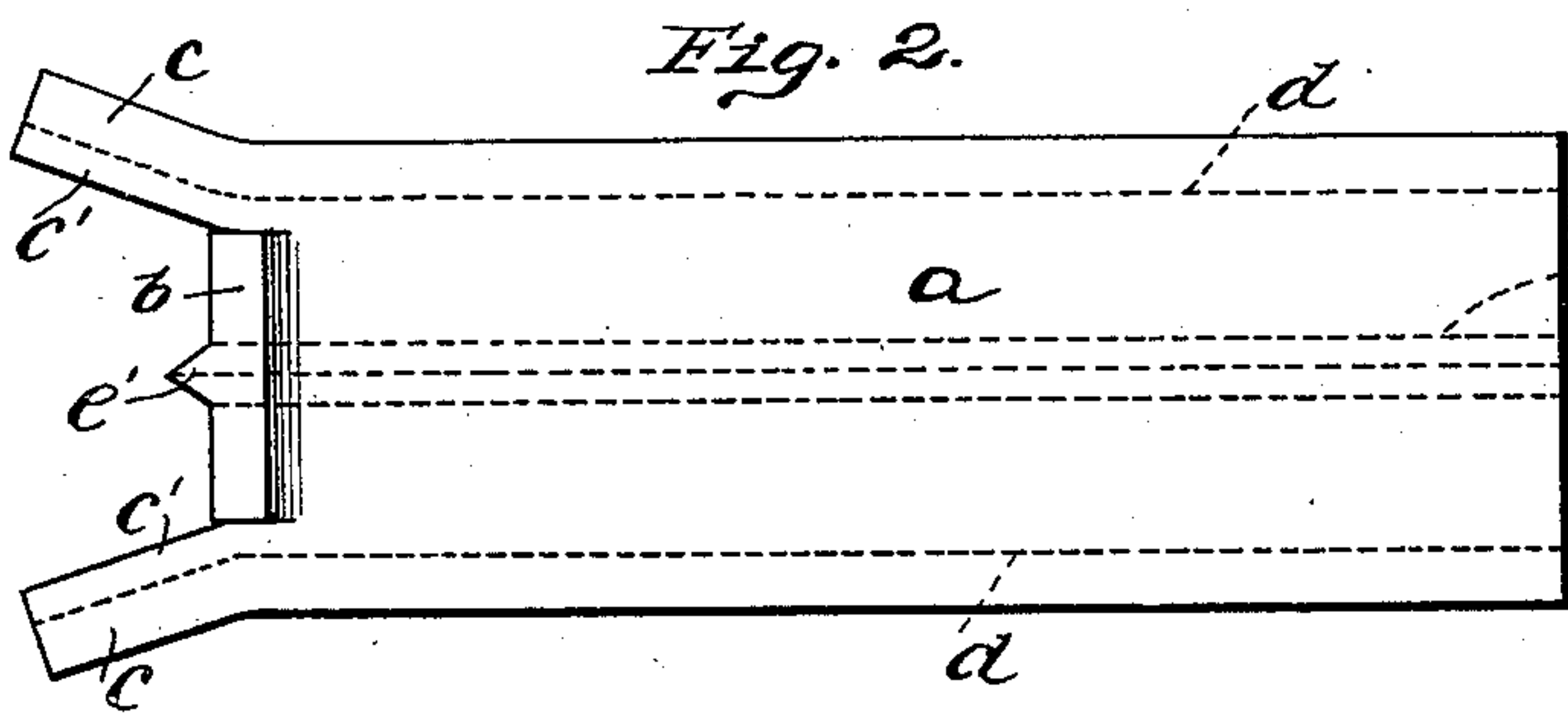
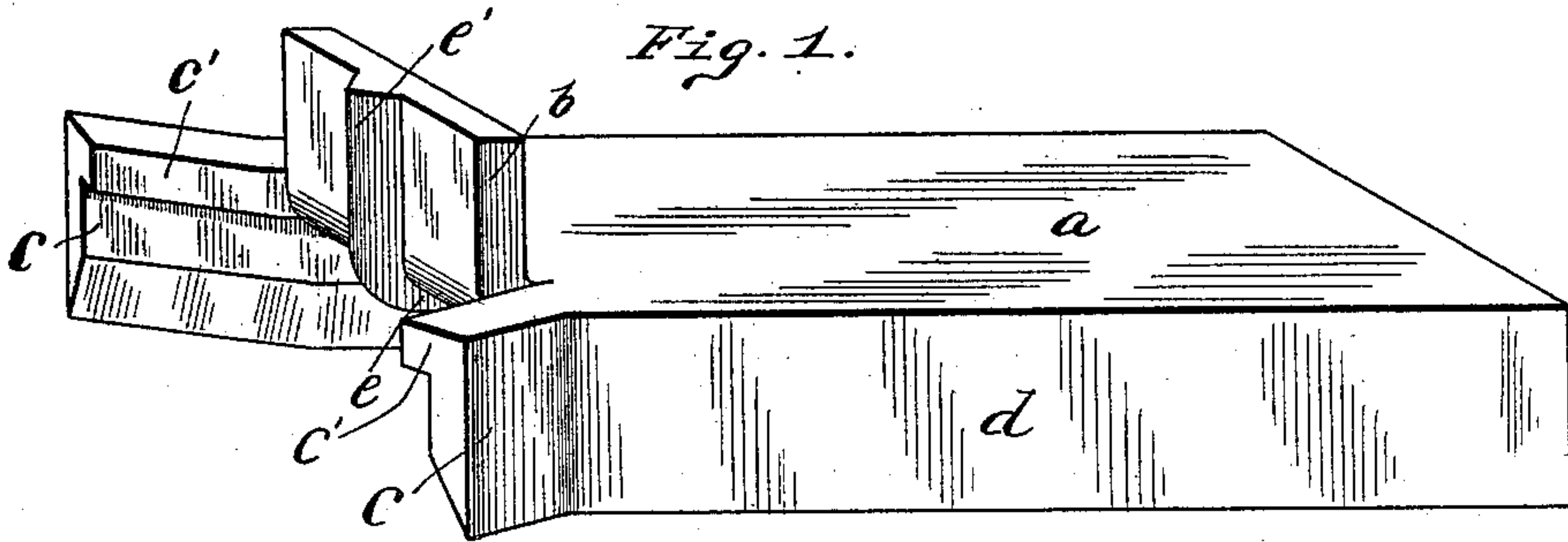


(No Model.)

W. GOLDIE.  
RAIL SUSTAINING BAR OR PLATE.

No. 601,646.

Patented Apr. 5, 1898.



Witnesses  
Walter Farnham  
Fred H. Hartung

Inventor:  
William Goldie  
by Stay & Totten  
Attorneys.



# UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WILKINSBURG, PENNSYLVANIA.

## RAIL-SUSTAINING BAR OR PLATE.

SPECIFICATION forming part of Letters Patent No. 601,646, dated April 5, 1898.

Application filed May 17, 1897. Serial No. 636,902. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GOLDIE, a resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rail-Sustaining Bars or Plates; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to rail protecting and supporting bars or plates, its object being to provide a simple form of such device which will prevent wear of the wooden tie and will also, while preventing lateral movement of the rail upon the bar or plate, give frictional hold upon the tie and prevent lateral movement of the bar or plate without cutting across any great amount of the fiber of the tie. In the making of tie bars and plates two principles have been involved, one the holding of the bar or plate to place by teeth or prongs entering the tie across its grain and so providing positive lateral resistance to the movement thereof, the principal objection raised against this class being that the prongs in cutting across a considerable portion of the grain of the tie weakened it. The other class of wear-plates has been provided with flanges entering the tie longitudinally of the grain thereof, not cutting across the fiber, and depending upon the frictional contact of the flanges upon the wood where these flanges enter longitudinally of the grain. The latter class of plates has been considered objectionable because they do not give sufficient resistance to lateral movement of the rail, the entire lateral resistance provided being through the spikes binding the rails to the tie.

The object of the present invention is to provide a bar or plate which, while cutting across but little of the fiber, will obtain its hold by the combined frictional action of flanges and, in addition thereto, the positive resistance to lateral movement.

To these ends the invention comprises, generally stated, a rail-sustaining bar or plate having prongs or flanges extending beyond the end thereof in a diagonal position, so as to give lateral resistance to the movement of the bar or plate, the preferred construction providing that these flanges shall be continu-

ous, extending longitudinally of the bar or plate, so as to enter longitudinally of the grain and obtain frictional hold, the diagonal spreading prongs or flanges being continuations of the same and combining the peculiar lateral resistance with the frictional hold of the longitudinal flanges, while the bar or plate itself is provided with a shoulder to hold the rail against lateral movement.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of the preferred form of my invention, showing the same in the form of a rail-sustaining bar. Fig. 2 is a top view thereof. Fig. 3 is an end view thereof. Fig. 4 is a perspective view of a rail and tie, showing the bar in place. Fig. 5 is a perspective view of the invention in connection with a wear-plate and showing the same in connection with a rail and tie.

Like letters indicate like parts in each of the figures.

The preferred use of the invention is in connection with a rail-sustaining bar of the type fully described in application for Letters Patent filed by me April 17, 1897, Serial No. 632,586, a rail-sustaining bar being distinguished from the rail or tie plates previously used in the fact that its thickness and width more closely approximate each other than can be obtained in a plate, while the bar is so narrow that it can be forced bodily into the tie and is sufficiently rigid to prevent its bending when entering the tie. Such form of rail-sustaining bar is illustrated in Figs. 1 to 4 of the drawings when the present invention is used in connection with such a bar. The bar has the body portion *a* and the shoulder *b* to sustain the rail against lateral movement, and it has, in addition thereto, the prongs or flanges *c*, which prongs spread or extend diagonally outward beyond the body of the bar, so that the two prongs occupy a flaring position with relation to each other, and when these prongs or flanges enter the body of the tie they extend diagonally across the grain or fiber thereof, so providing lateral resistance by a diagonal hold on the body of



the tie. As so constructed the prongs or flanges, which are thus spread apart into diagonal position, cut across only a small portion of the grain or fiber without materially weakening the tie, and they obtain the lateral resistance to the movement through the wedging of the tie into the wedge-shaped seat formed by the spreading or flaring flanges. It will be apparent that practically all lateral strain is thus resisted, the only possible movement of the plate forcing the flaring flanges farther into the body of the tie and bending them into greater flaring position, which would be resisted by the fiber bearing on their outer faces, so that it would be practically impossible to move the bar. I prefer to form the bar in the way illustrated in the drawings, employing for that purpose a channel-bar, the flanges *d* of which form extensions of the spreading flanges *c*, in which case the spreading flanges *c* are strengthened by their direct connection with the flanges *d* and increase the hold by the frictional contact of the flanges *d* with the fiber of the tie where they extend longitudinally thereof. To add to the strength of the prongs or flanges, I prefer to form along their upper inner edges the ribs *c'*, which increase their rigidity. I also prefer to strengthen the bar itself and the shoulder *b* by forming along the under face of the body *a* a longitudinal rib *e* of small section, which also extends vertically up the face of the shoulder *b*, as at *e'*. When this is employed, the body *a* need not be formed so thick to obtain the desired rigidity. It is intended that the bar shall be made of a length corresponding approximately to the width of the rail-base, and three or four lengths of such bars will be sufficient to accommodate the different widths of rail-bases generally produced.

When the invention is used in the form of bar illustrated in Figs. 1 to 4, it will only be necessary to place the same under the rail *f* until its shoulder *b* rests against the outer edge of the rail-base *f'*, this being accomplished in rails that have been laid by raising the rail sufficiently for that purpose, and the bar will be forced to its place either by a few blows or by the weight of the next passing train, and as it is sufficiently rigid and stiff and of narrow width, embodying the idea of a bar above referred to, it will embed itself in the body of the tie, so giving an exceedingly strong hold between the rail and the tie to resist both wear on the tie and lateral movement of the tie, while permitting the rail to come in contact with the surface of the wooden tie. The lateral resistance will be provided, in connection with the contact of the rail with the shoulder *b*, by the hold of the flaring flanges or prongs *c* upon the tie, as above described. Such bar can be easily and rapidly formed from channel-

bars by shearing short lengths therefrom and shearing and bending up the shoulder *b* and spreading the flanges *c*.

Where the invention is employed in connection with what are known as "wear-plates"—that is, plates of less thickness and greater width than bars and which are intended themselves to sustain the wear upon the tie without permitting contact between the two—the invention is preferably applied in the form shown in Fig. 5, in which the body portion *g* has the longitudinally-extending flanges *h*, the ends of which are bent out into flaring position to form the flaring prongs *k*, the same as illustrated in connection with the rail-sustaining bar above described, while to sustain the rail against lateral movement the shoulder *m* is bent upwardly from the plate and the space *n* is provided beside the same to receive the spike *o*. As such plates are generally made of greater width than the rail, I also prefer to form in the rear end of the same the spike-hole *p* to receive the spike *r*, and the spikes employed in connection with the plate will hold the rail down upon the plate, as is usual in wear-plates of this character.

In either form of bar or plate the advantages incident to the use of the same, the rail, pressing against the shoulder on the bar or plate, being sustained against lateral movement chiefly by the flaring prongs or flanges, which enter the wood diagonally of the grain thereof, and in this way provide the necessary lateral resistance.

What I claim as my invention, and desire to obtain by Letters Patent, is—

1. A rail-sustaining bar or plate having prongs or flanges thereon extending beyond the end thereof and spread into flaring diagonal position so as to give lateral resistance between the same and the tie, substantially as set forth.

2. A rail-sustaining bar or plate having at the outer end thereof an upwardly-projecting shoulder, and beyond such outer end prongs or flanges extending diagonally to the body of the plate so as to give lateral resistance between the same and the tie, substantially as set forth.

3. A rail-sustaining bar or plate having flanges extending longitudinally thereof and having the ends of the flanges extending diagonally to the main portions thereof, so as to give lateral resistance between the same and the tie, substantially as set forth.

4. A rail-sustaining bar or plate having flanges extending longitudinally thereof and having the ends of said flanges spread into flaring position diagonal to the main portions thereof so as to give lateral resistance between the same and the tie, substantially as set forth.

5. A rail-sustaining bar or plate having



a shoulder at the outer end thereof and having  
flanges projecting forward into flaring or di-  
agonal position, and ribs along the inner faces  
of the upper portions of said flanges, substan-  
5 tially as set forth.

6. A rail-sustaining bar or plate having  
a shoulder at the outer end thereof, and a  
strengthening-rib extending longitudinally  
along the bottom face thereof and upwardly

on the outer face of said shoulder, substan- 10  
tially as set forth.

In testimony whereof I, the said WILLIAM  
GOLDIE, have hereunto set my hand.

WILLIAM GOLDIE.

Witnesses:

ROBT. D. TOTTEN,  
ROBERT C. TOTTEN.