

(No Model.)

W. GOLDIE.  
RAIL SUSTAINING BAR OR PLATE.

No. 601,647.

Patented Apr. 5, 1898.

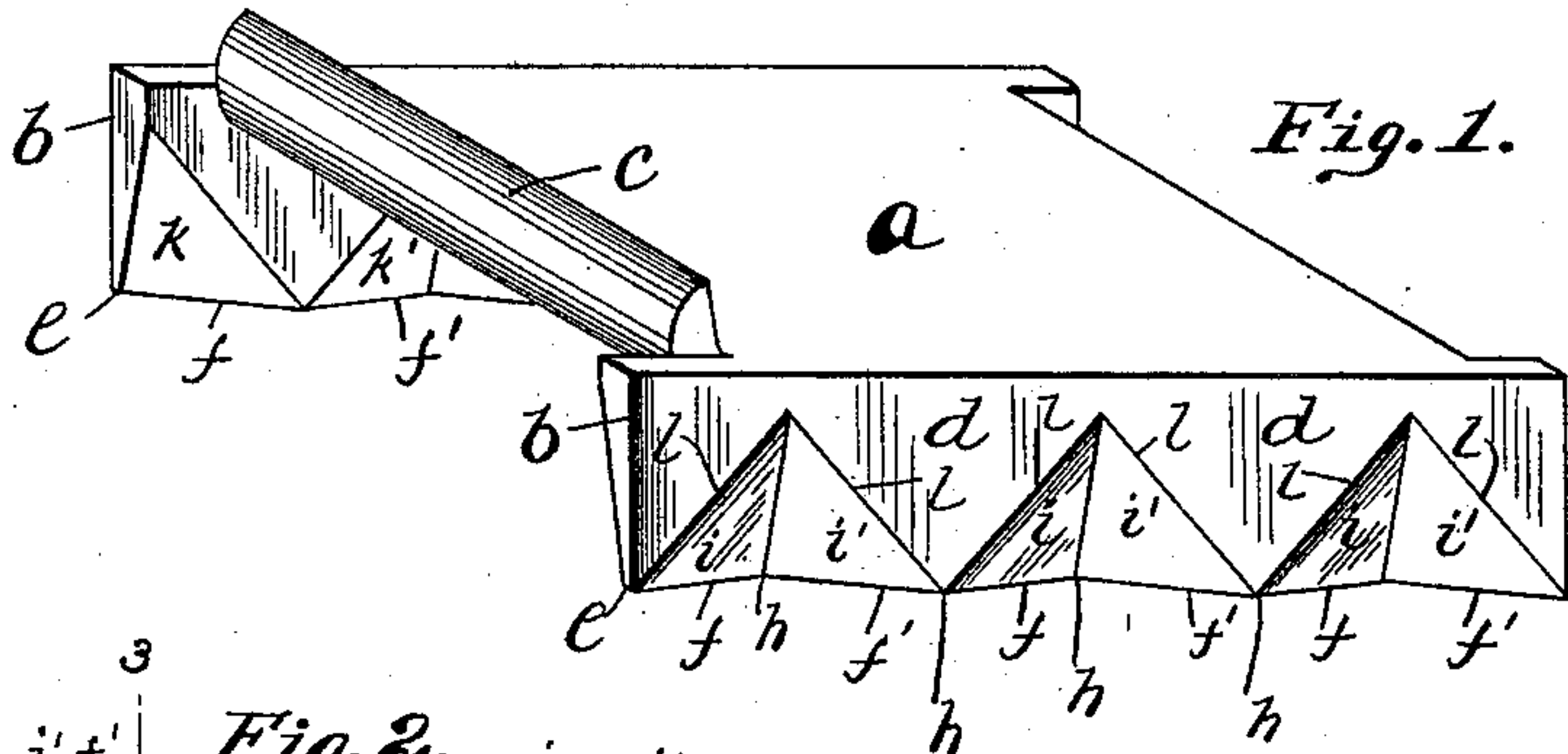


Fig. 1.

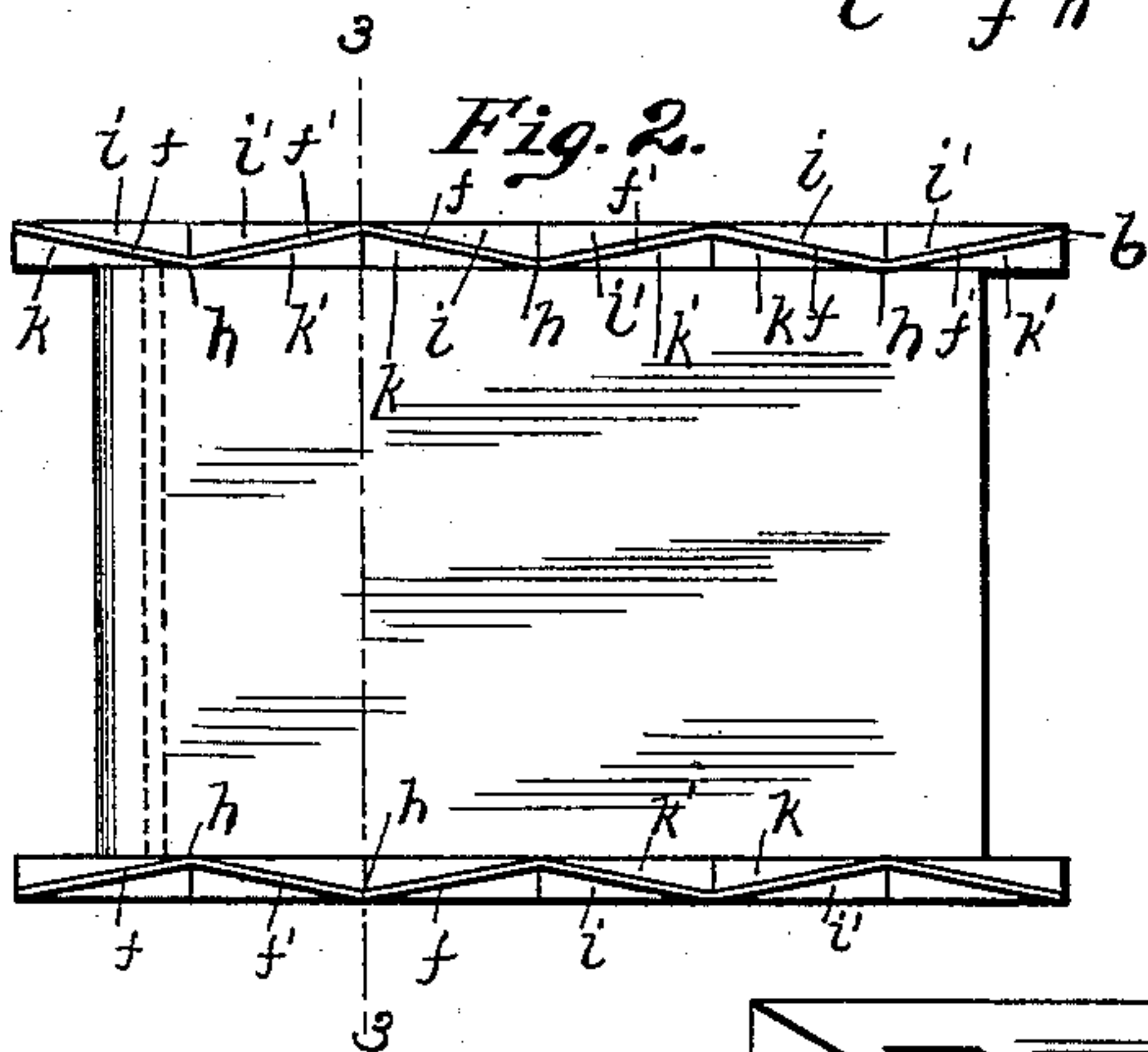


Fig. 2.

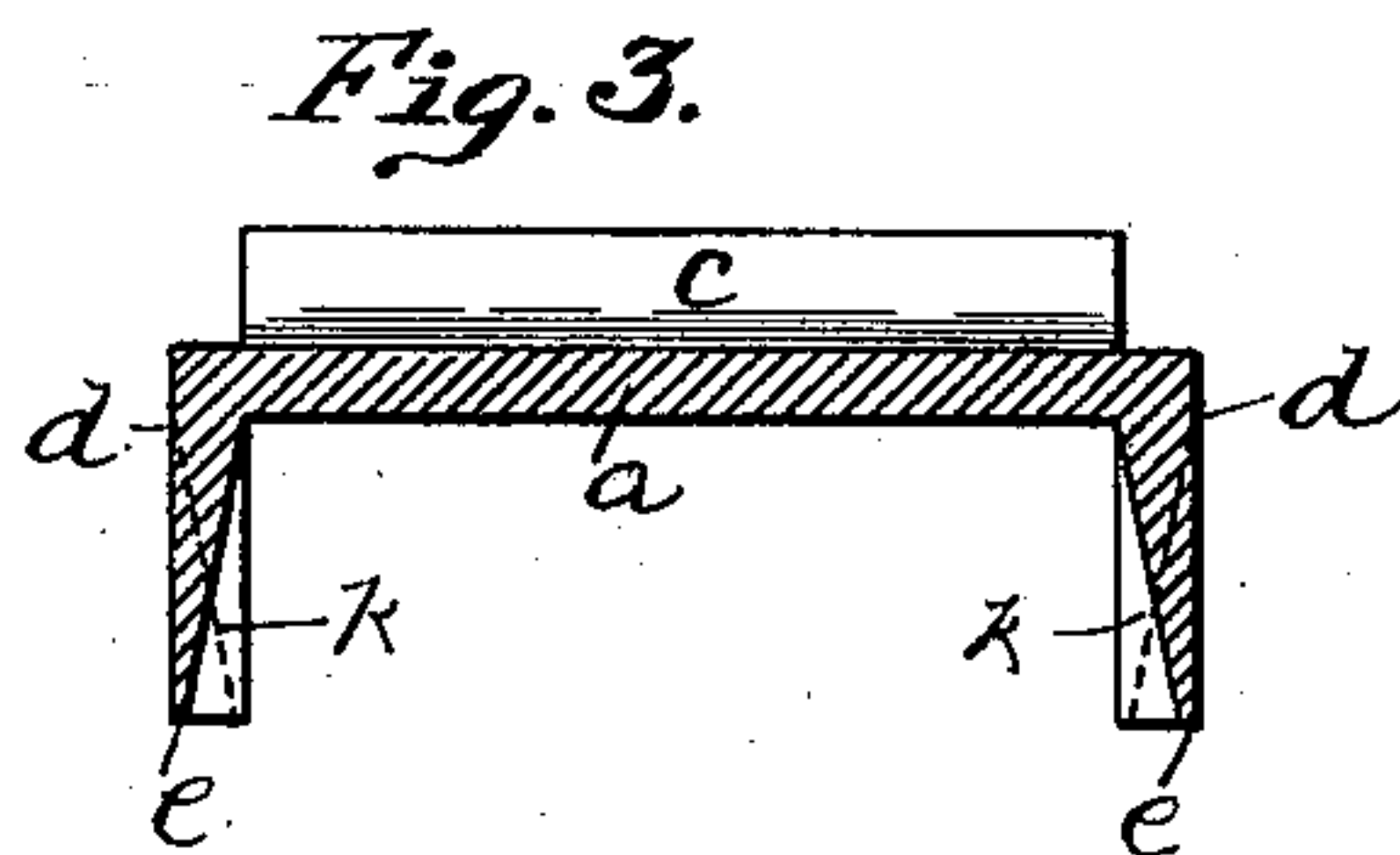


Fig. 3.

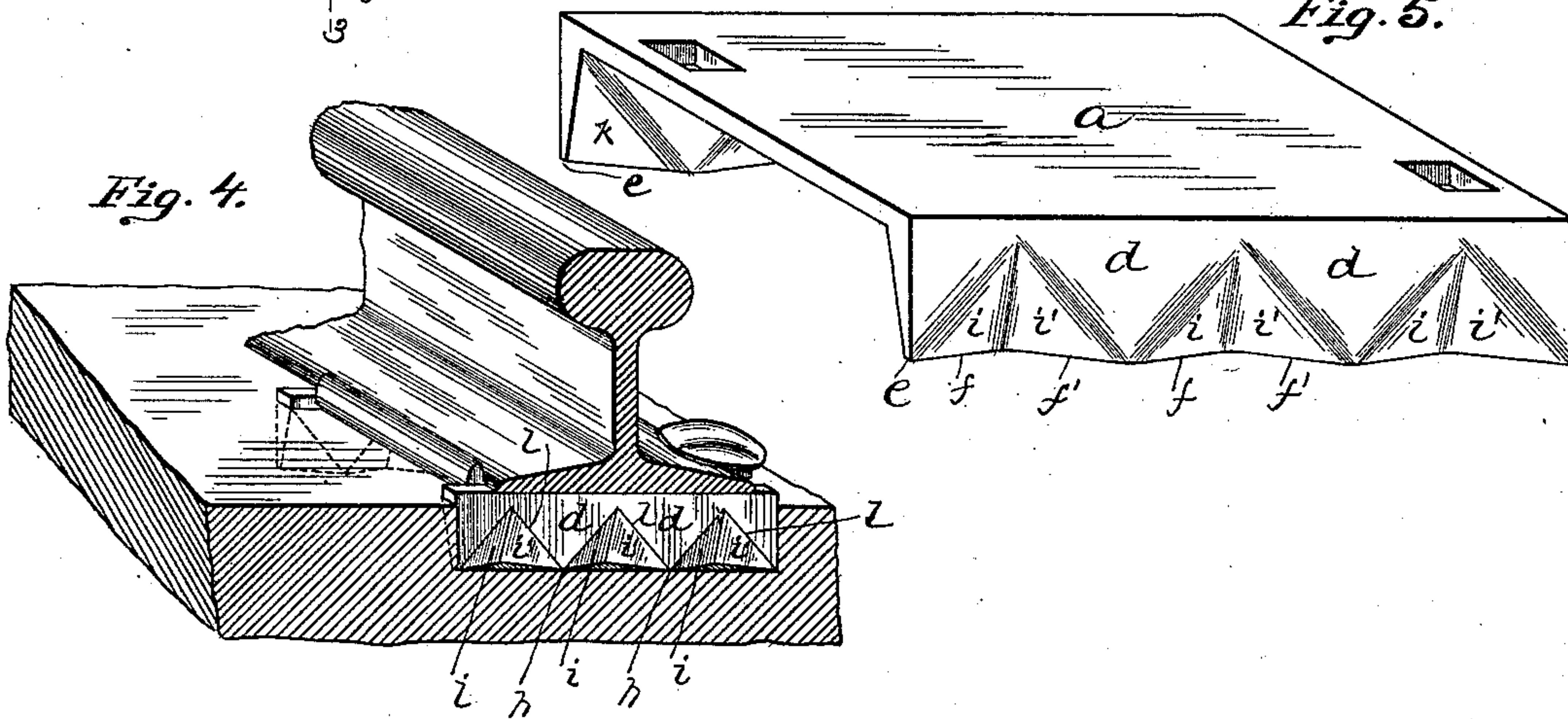


Fig. 4.

Fig. 5.

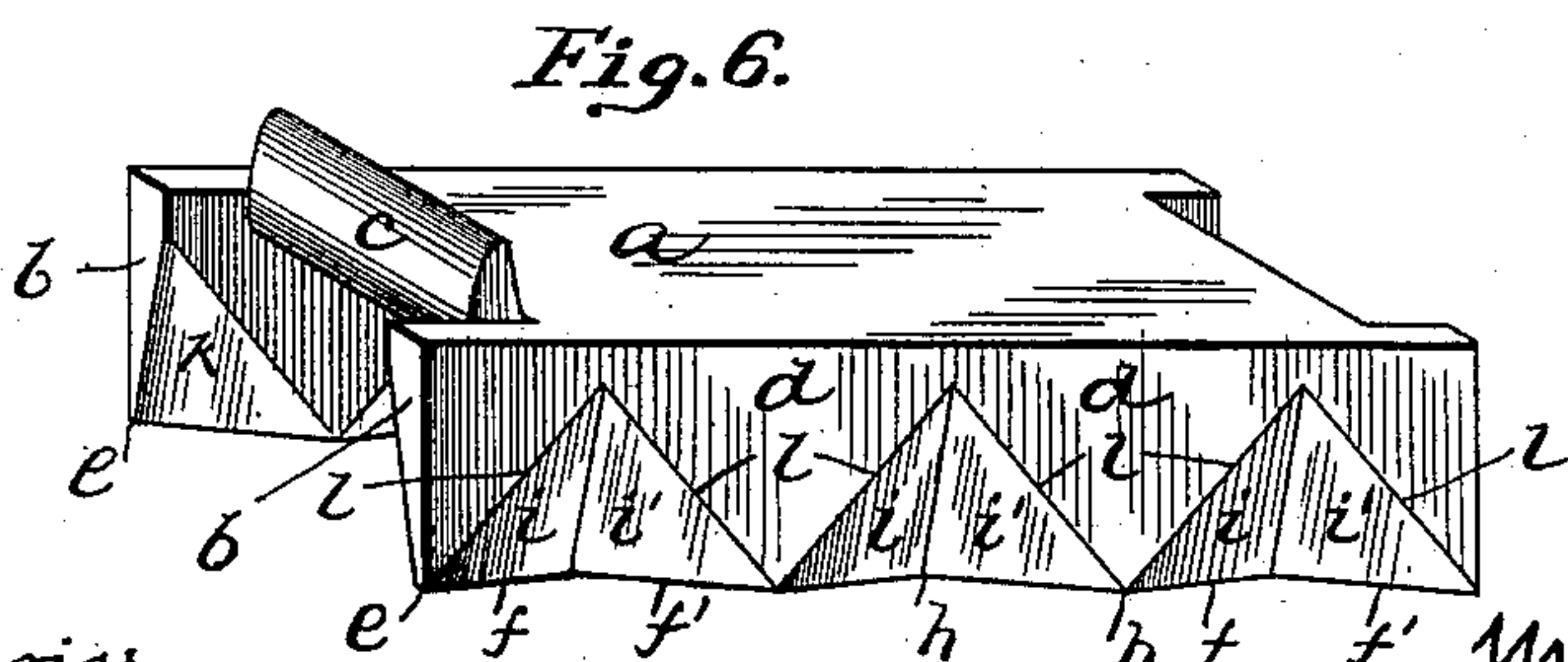


Fig. 6.

Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WILKINSBURG, PENNSYLVANIA.

## RAIL-SUSTAINING BAR OR PLATE.

SPECIFICATION forming part of Letters Patent No. 601,647, dated April 5, 1898.

Application filed November 29, 1897. Serial No. 660,124. (No model.)

*To all whom it may concern:*

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

My invention relates to rail-sustaining plates or bars—that is, to that class of plate or bar now largely used in connection with soft-wood railroad-ties for the purpose of preventing the heavy strains on the rail from wearing into the tie. It has been found that long-lived soft-wood railroad-ties, such as cedar, give even better results than the ordinary hard-wood tie, provided the wood of the tie is neither broken down in securing the rail in place or worn into by the lateral and vertical strains brought upon the rail. In addition to spikes, which can be driven into such soft wood without tearing it, tie-plates have heretofore been provided which receive the heavy strains or wear of the rail and protect the body of the tie therefrom, plates of this kind being illustrated in certain applications filed by me May 17, 1897, Serial No. 636,902, and filed by me October 22, 1897, Serial No. 655,992. In both said applications portions of the flanges on the plate by which it took hold upon the tie extended longitudinally of the fiber of the wood, and therefore had no hold upon the same except the frictional hold of such flange upon the wood, the power to resist lateral strain brought upon the plate being obtained in the one case by means of diagonal prongs or flange portions at one end of the plate, which cut diagonally of the fiber, and in the other case by diagonal prongs or flange portions between the ends of the flanges. The present invention relates substantially to the same general class, its object being to provide a rail-sustaining plate which while entering the tie easily and cutting but little across the fiber shall be so formed as to have power to resist lateral strain upon the rail for the entire length of the flange portion of the plate.

It consists, generally stated, in a rail-sustaining plate or bar provided with a flange extending below the same, the upper part of such flange being straight, while the base thereof is formed of a series of diagonally-ex-

tending cutting edges joining each other and pressing-faces alternately tapering on the inside and outside of the plate and extending down to such diagonal cutting edges, so that when the plate is driven into the tie its first action is to cut the wood fiber on diagonal lines corresponding to such undulating base portion for the full length of the plate, and as the plate is driven farther into the tie the wood so cut on diagonal lines is compressed on one or the other side of the flange, so as to compact it and increase its hold upon the flange as it is driven farther into the wood.

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 plate. Fig. 2 is a bottom view thereof. Fig. 3 is a cross-section on the line 3 3, Fig. 2. Fig. 4 is a perspective view showing the plate applied between the rail and wooden cross-tie. Fig. 5 is a perspective view of the plate as made without the shoulder to resist lateral strain, and Fig. 6 is a perspective view of a rail-sustaining bar having the invention applied thereto.

Like letters indicate like parts in each.

The plate embodying the invention has the main body *a* and is preferably provided with two flanges, one extending along each edge thereof, as at *b b*, while in order to sustain the rail against lateral strain it has swaged up from the body thereof the shoulder *c*, against which the rail flange or base rests. The flange *b* extends down from the plate a proper depth, commencing at the upper part *d* thereof, which is substantially parallel with the plate both on its inner and outer sides, and then extending with a gradual taper down to the cutting edge *e*, which edge is continuous along the plate, but which is formed of a series of diagonally-extending cutting edges *f f'*, joining each other, as at *h h*. This peculiar continuous cutting edge may either be formed of an undulating line, which is more clearly shown in Fig. 5, or the cutting edges *f f'* may be straight and connected with each other by angles, as shown in the other figures. In either case it will be seen that the cutting edges when entering the wood will cut across it diagonally in one direction and then diagonally in the



other, alternating in the direction of its cut for the full length of the flange. In order to form such undulating cutting edge extending down from the upper part of the flange, which is longitudinal where it joins the main plate, I form the tapering faces  $i\ i'$  on the outside of the plate and  $k\ k'$  on the inside thereof, which taper down to such cutting edges  $f\ f'$ , respectively, such tapering faces extending up to diagonal lines  $l$ , extending from one point or angle  $h$  up toward the top portion of the flange.

The plate shown in Fig. 5 is substantially the same as the plate shown in Fig. 1, except that the connecting-angles are more rounding, and the bar shown in Fig. 6 is substantially the same as the plate shown in Fig. 1, except that it is formed as a rail-sustaining bar, its body being so narrow in proportion to the thickness thereof that it will be forced down into the tie and give the rail more bearing on the tie-body.

The plates or bars above described can easily be formed by certain rolling and other operations which need not be considered at this time, further than to state that they can be made at small cost.

In the use of the rail-sustaining plate or bar, as it is placed in position under the rail, its cutting edges will of course rest thereon diagonally to the fiber of the tie, which extends transversely of the rail, such cutting edge therefore extending in oblique lines diagonally across and forming acute angles with such fiber. As the plate is driven down into the tie either by the weight of the passing train on the rail or by special tools the undulating cutting edges will cut into the tie in the manner above described and the fiber will be pressed by the inclined faces  $i\ i'$  and  $k\ k'$

backwardly away from the said cutting edges, such fiber being compressed by the inclined faces and the wood compacted as it is forced back to permit the flanges to enter the body of the tie. In this way the wood is compacted on both sides opposite each other by the inclined faces and an extremely strong hold is obtained by the plate or bar upon the tie-body, and a hold which on account of the diagonally-extending cutting edges cutting obliquely across the grain or fiber of the wood gives a hold for the full length of the plate, which prevents longitudinal movement of the plate and enables it to resist the side strain brought upon it by the train in passing over the rail. At the same time it will be seen that only a small portion of the wood fiber is severed, and that small portion is severed on oblique lines which do not cut far across the portion of the tie receiving the plate, and while but little of the fiber is severed the strong hold above described to resist lateral strain is obtained by a very simple and effective means.

What I claim for my invention is—

A rail-sustaining plate or bar formed of a body portion having a flange extending below the same, the upper part of such flange being straight while the base thereof is formed of a series of diagonally-extending cutting edges joining each other and pressing-faces alternately tapering on the inside and outside of the plate and extending down to such diagonal cutting edges, substantially 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.