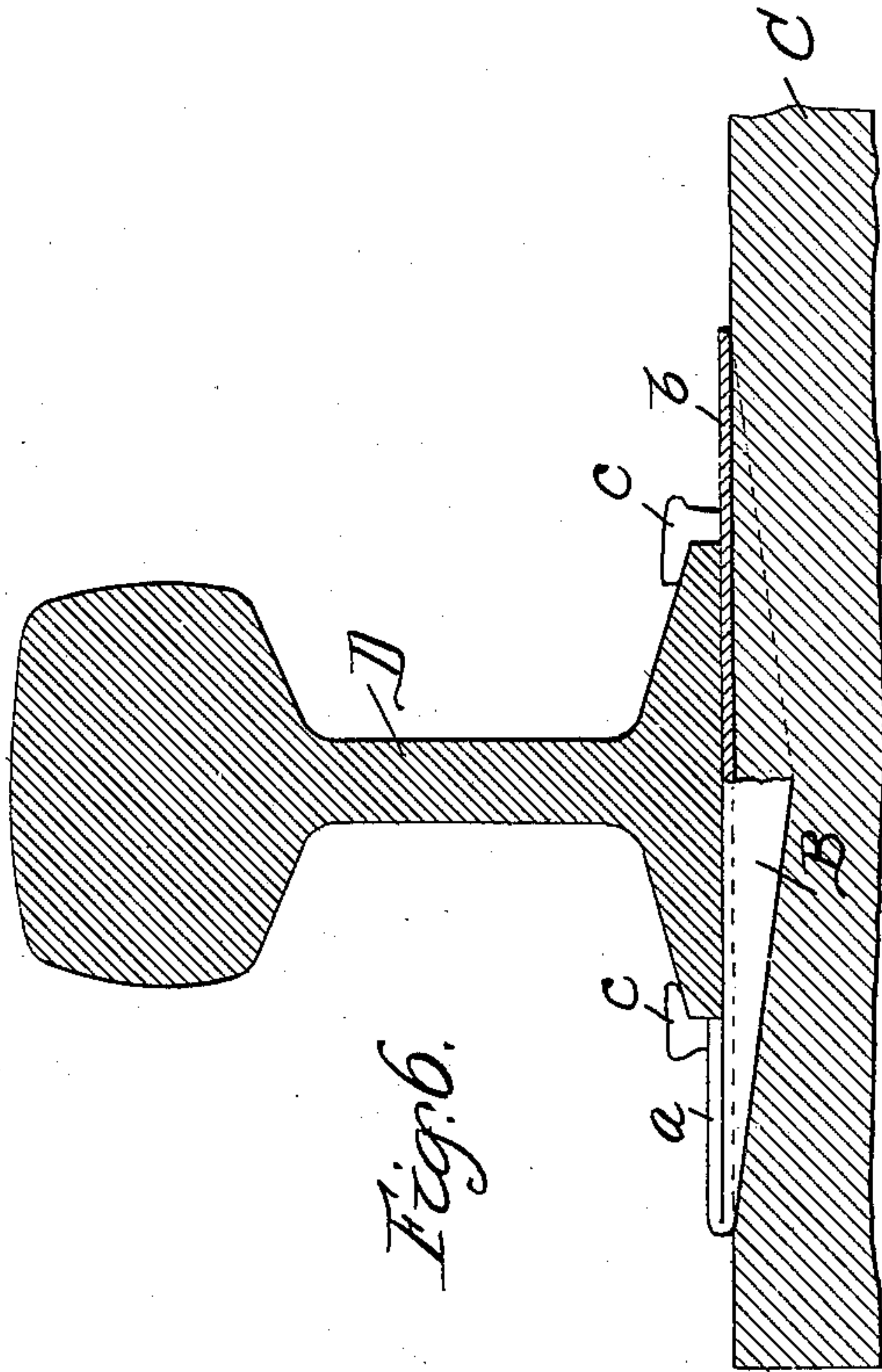
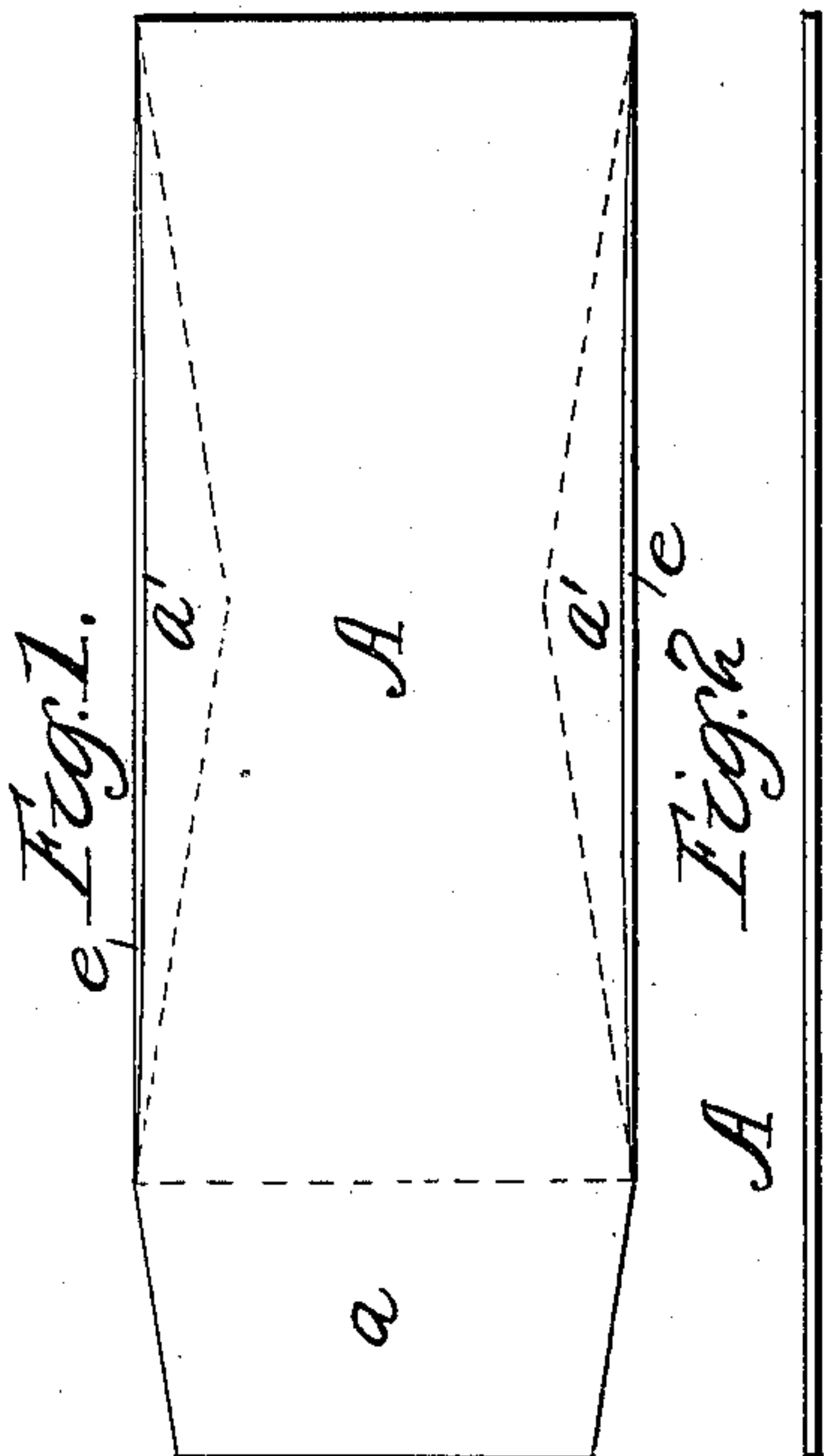
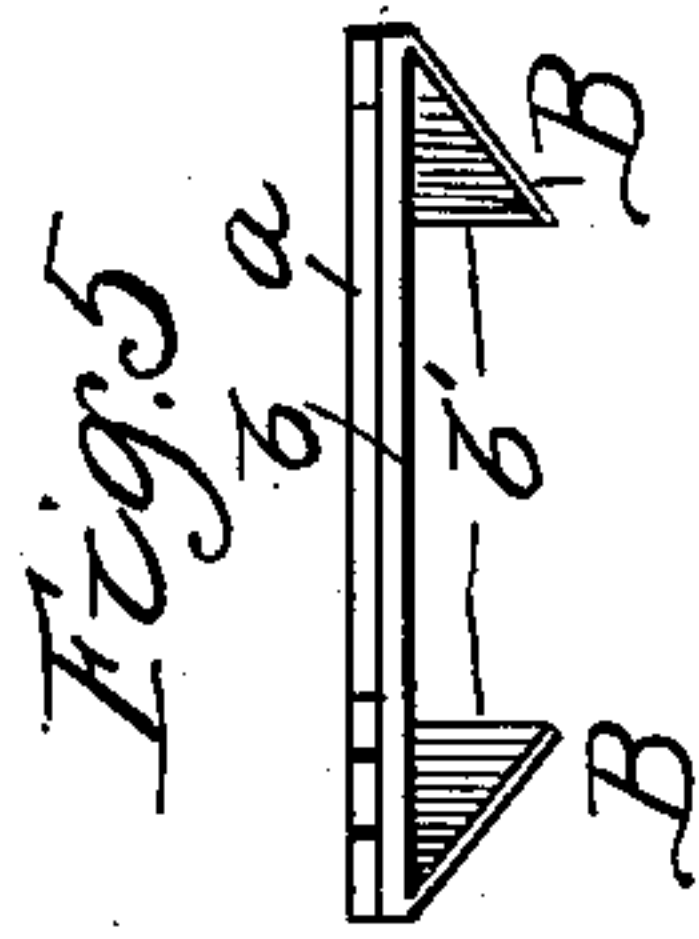
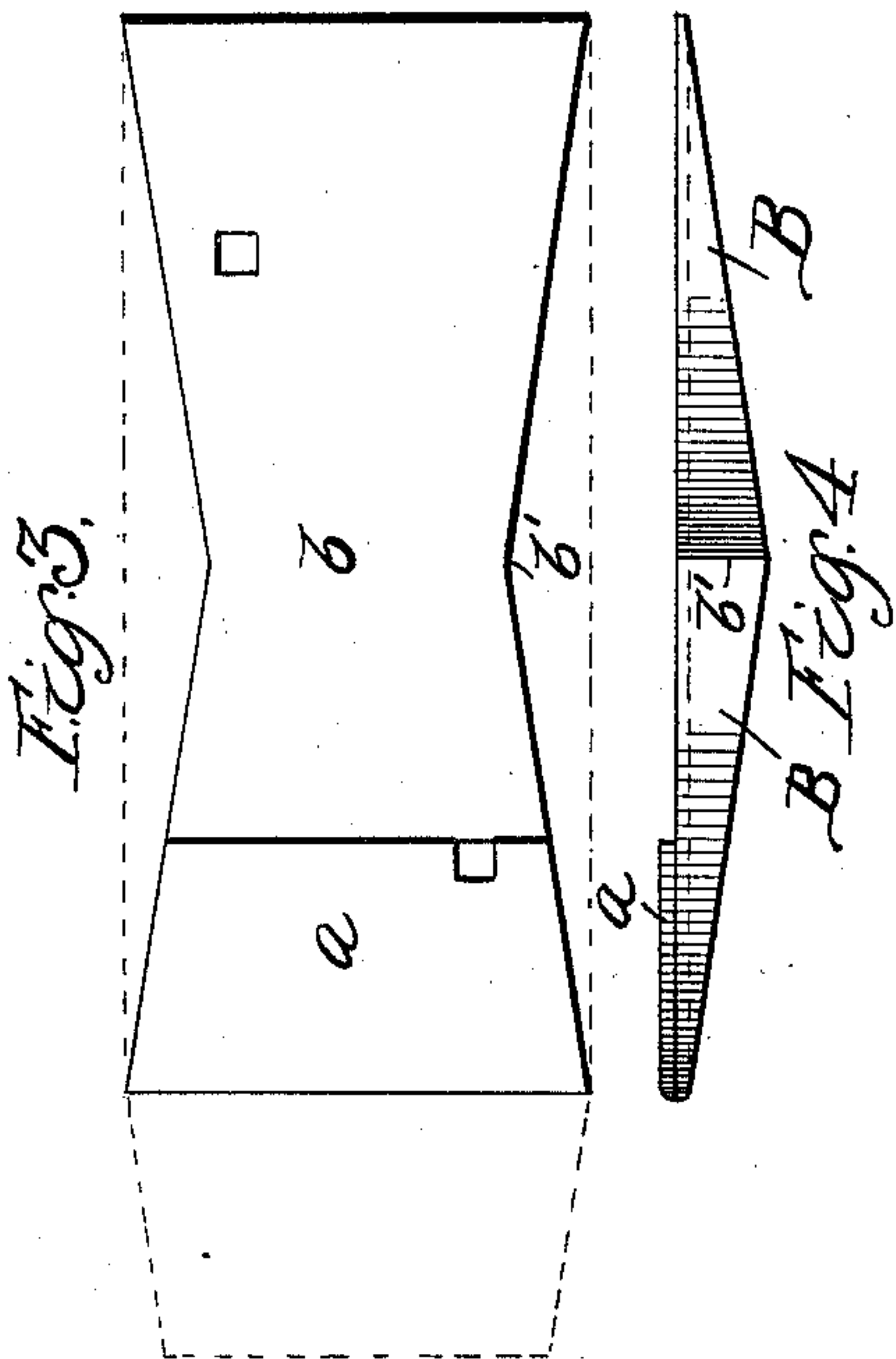


(No Model.)

J. L. YALE.
TIE PLATE.

No. 596,731.

Patented Jan. 4, 1898.



Witnesses,
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UNITED STATES PATENT OFFICE.

JULIAN L. YALE, OF CHICAGO, ILLINOIS.

TIE-PLATE.

SPECIFICATION forming part of Letters Patent No. 596,731, dated January 4, 1898.

Application filed September 25, 1897. Serial No. 653,007. (No model.)

To all whom it may concern:

Be it known that I, JULIAN L. YALE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tie-Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to certain new and useful improvements in tie-plates; and one of its primary objects is to effectually prevent the rail from being moved out of its normal and proper position on the tie.

Many railroad accidents are due to spreading of the rails which occurs through inefficient securing of the rail to the ties.

Another object of the invention, therefore, is to provide a tie-plate of such construction that when it is once properly arranged on the cross-tie it cannot be moved laterally while the rail is in position; and a further object of the invention is to provide a tie-plate which will remain in a fixed position on the cross-tie and prevent the rail from wearing or cutting away the ties.

With these and other ends in view the invention consists in the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a sheet of metal from which my improved tie-plate is stamped or otherwise formed, showing the outline of the finished plate in broken lines. Fig. 2 is a side elevation of the blank shown in Fig. 1. Fig. 3 is a top plan view of the finished tie-plate, the broken lines showing the outline of the original blank. Fig. 4 is a side elevation of the finished tie-plate. Fig. 5 is an end view thereof. Fig. 6 is a sectional view showing the application of a tie-plate to a cross-tie with the rail in position.

Referring to the drawings, in which like letters of reference denote corresponding parts in all of the figures, A designates a substantially rectangular-shaped blank of the proper size and configuration, from which the finished tie-plate may be stamped or formed in any other manner desired. On one end of the blank is an extension or lip *a*, which is bent over onto the top of the tie-plate in the manner

shown in Figs. 3 and 6 to provide the usual shoulder against which the flange of the rail is squared and rests.

Tie-plates are subjected to a very great strain and pressure, which comes at irregular intervals and largely in the form of shocks. The tendency of the tie-plate is to creep on the cross-ties under the influence of these shocks, and it is a well-known fact that the creeping of tie-plates frequently causes a rail to spread sufficiently to result in an accident. This creeping is caused sometimes by reason of the fact that the weight and pressure and shock directed upon that portion of the tie immediately beneath the rail operate to buckle the tie-plates slightly and in other ways to cause the fastening-spikes *c* to become loosened. To overcome this defect in the construction of tie-plates, I provide mine with oppositely-converging flanges B, which are arranged to be impressed into the tie, and their construction is such that they will operate in the form of wedges to prevent the tie-plate from moving in any direction. The flanges B are stamped up from the blank A by forcing down a portion *a'* of said blank at each side, these flanges being of greater depth where they come together at the narrowest portion *b* of the tie-plate and gradually reducing in depth to the end of the tie-plate, as clearly shown in Fig. 4. By forcing the flanges down in this manner, so that the two flanges on each half of the tie-plate will be inclined on converging lines at the center of the tie-plate, these flanges being stamped up from the rectangular blank from which the tie-plate is formed, whereby the flanges are deepest at the narrowest part of the tie-plate, where they are joined, as indicated by *b'*, the plate itself is materially strengthened, for the flanges operate as trusses on the under side of the tie-plate and prevent the same from being buckled or bent. Any tendency on the part of this tie-plate to buckle or bend would result in causing the flanges to spread, and the fact that they are buried in the wood of the cross-tie would effectually prevent any movement of the flanges. It will thus be observed that when the tie-plate has been buried in the cross-tie C in the manner illustrated in Fig. 6 and the rail D secured thereon by the spikes *c* it will be impossible for the tie-plate

to creep sidewise because of the oppositely-converging side flanges, and there will also be no danger of the tie-plate buckling because of the construction and arrangement of said side flanges and their engagement with the cross-tie.

I am aware that changes in the form and proportion of parts and details of construction of my invention may be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make all such changes as fairly fall within the spirit and scope of the invention.

In order that the side flanges may enter the cross-tie readily, they are preferably sharpened, the blank being prepared for this purpose, as indicated at *e* in Fig. 1.

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

1. A tie-plate comprising a metal plate having oppositely-converging flanges on its side edges, adapted to engage the tie, substantially as and for the purpose described.

2. A tie-plate having oppositely-converging flanges on its under side adapted to engage the tie, said flanges being deepest at the meeting-point of the two flanges on each side of the plate, substantially as described.

3. A tie-plate narrower at its middle than at its ends and provided with oppositely-converging flanges on its side edges, adapted to engage the tie, substantially as described.

4. A tie-plate narrower at its middle than at its ends and provided with side flanges, said flanges gradually reducing in depth from the narrow portion of the tie-plate to the ends thereof, substantially as described.

5. A tie-plate provided with side flanges and formed substantially into two connected wedge-shaped parts, substantially as described.

6. A tie-plate formed substantially into two wedge-shaped parts connected at their narrow ends, substantially as described.

JULIAN L. YALE.

Witnesses:

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