

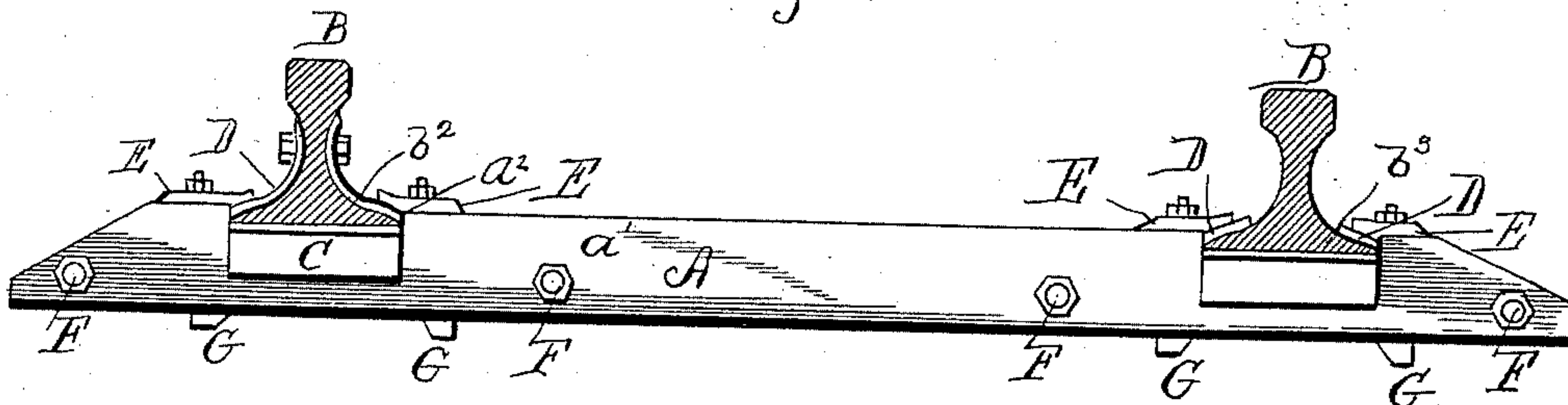
(No Model.)

R. MORRELL.  
RAIL JOINT FASTENING.

No. 483,854.

Patented Oct. 4, 1892.

Fig. 1.



*Fig. 2.*

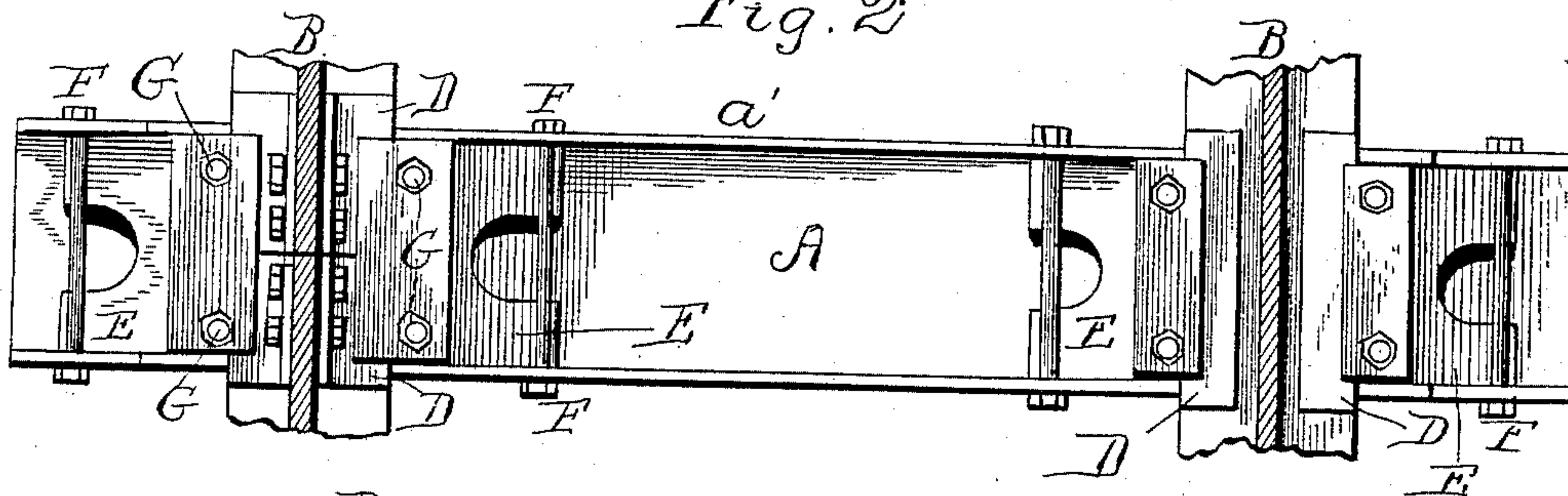


Fig. 3.

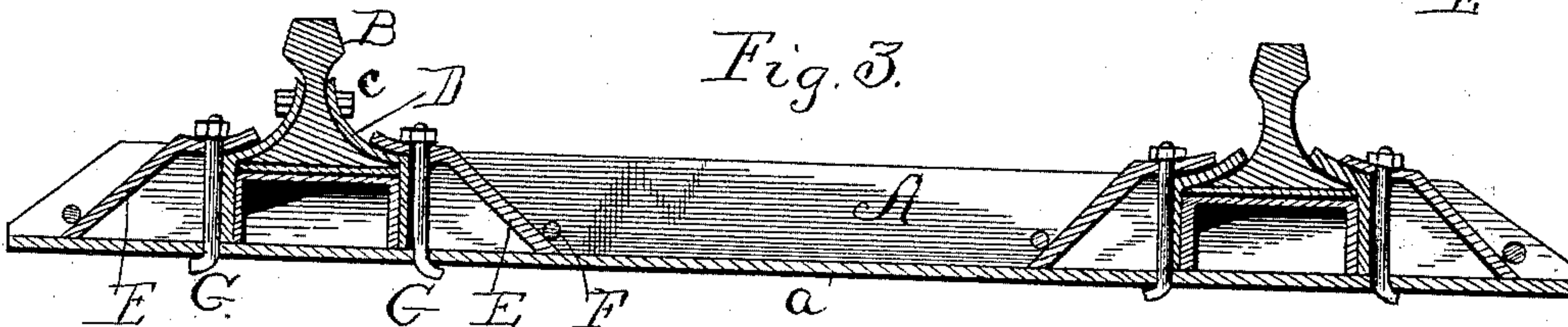


Fig. 4.

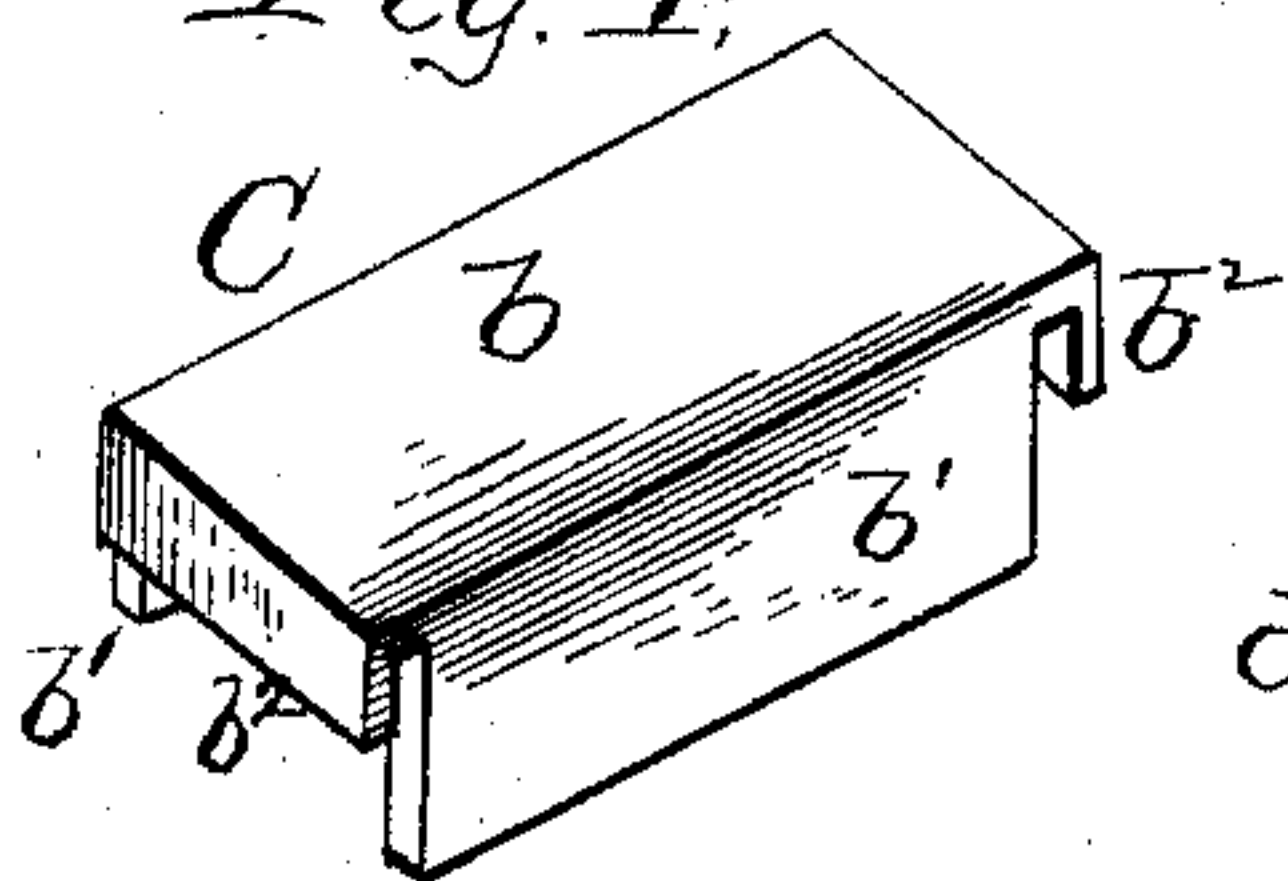


Fig. 5.

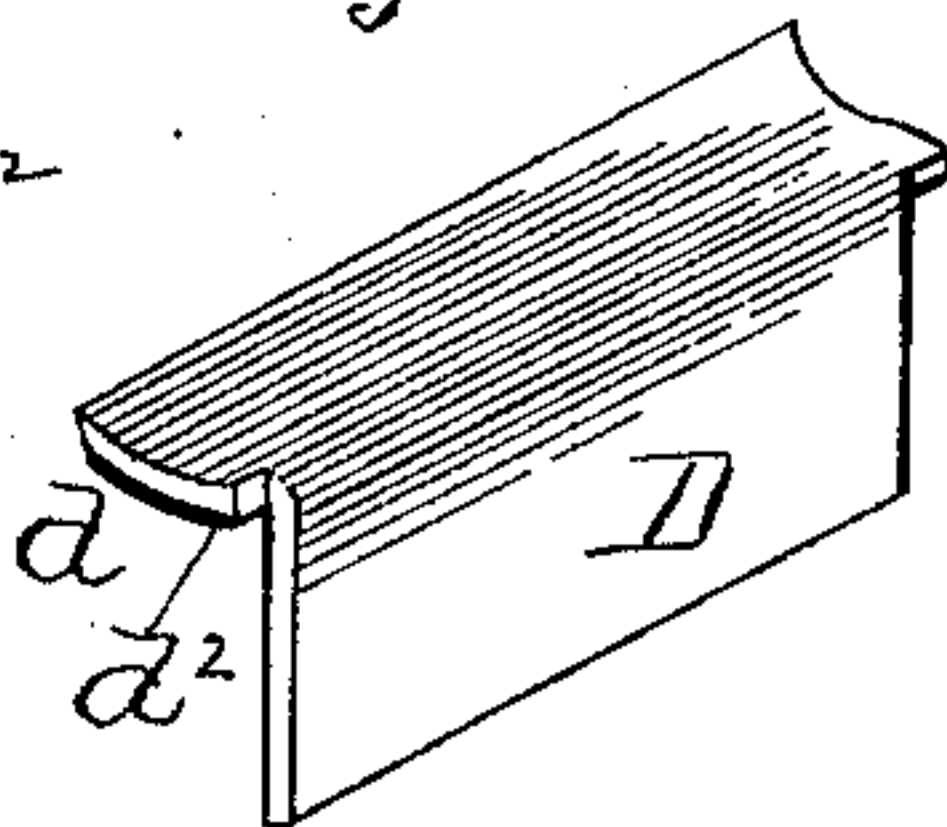


Fig. 6.

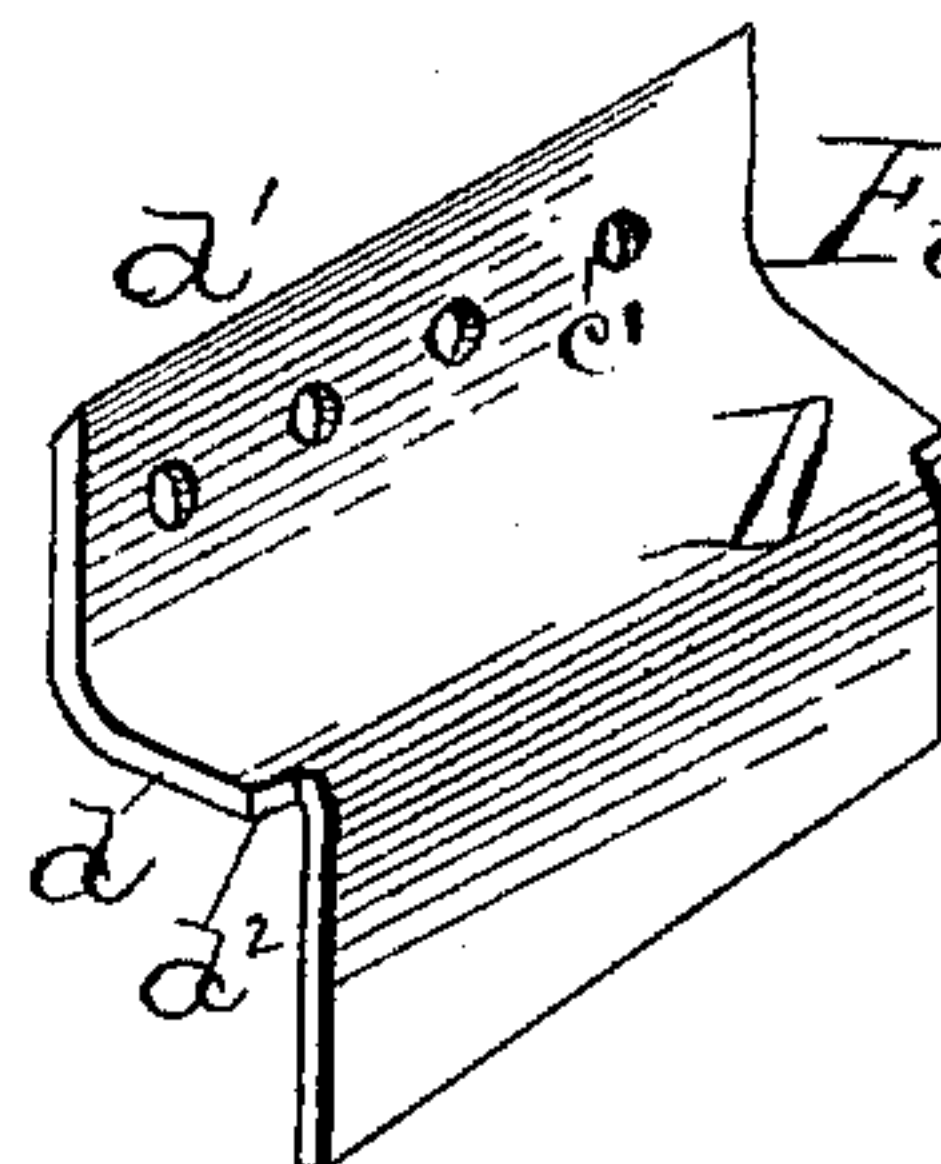
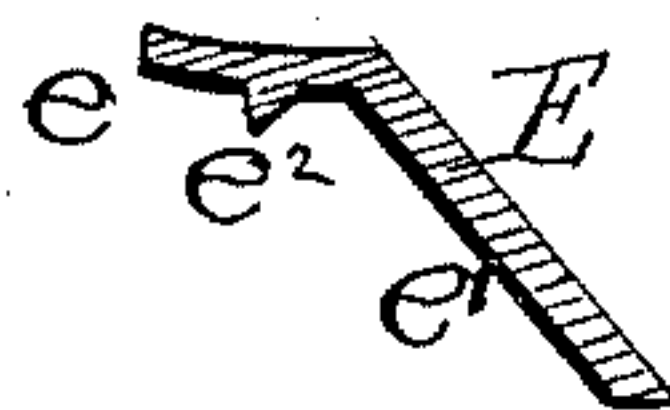


Fig. 7.



Witnesses:

J. M. Winter  
H. J. Robinson.

Inventor:

Robt Morrell  
for J. B. Crashears  
Atty



# UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY, ASSIGNOR OF FOURTEENTWENTIETHS TO CHARLES S. DAY, AUGUSTUS F. LIBBY, CHARLES F. WOOD, AND GEORGE H. WILLIAMS, OF SAME PLACE, WILLIAM W. McCULLUM, OF MILLBURN, JAMES NEAFIE AND CHARLES BROCK, OF BOONTON, WILLIAM H. LEWIS AND ANDREW REASONER, OF HOBOKEN, FREDERICK NISHWITZ, OF MILLINGTON, AND CHARLES SIEDLER, OF MORRISTOWN, NEW JERSEY.

## RAIL-JOINT FASTENING.

SPECIFICATION forming part of Letters Patent No. 483,854, dated October 4, 1892.

Application filed December 29, 1891, Serial No. 416,404. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT MORRELL, a citizen of the United States, residing at Summit, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Rail-Joint Fastenings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in fastenings whereby railway-rails are secured to metallic ties, and is specially designed for securing the rails at their joints. Its object is to generally improve such structures; and it consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward pointed out specifically in the claims.

In the drawings herewith, Figure 1 is a view in side elevation of a railway-tie with the rails secured thereto by my improved fastening, the left-hand fastening being such as I usually apply to the joints of rails and that on the right the fastening used in other parts of the rail. Fig. 2 is a plan view thereof, the heads of the rails being cut off. Fig. 3 is a longitudinal vertical section through the same on the line of the clip-securing bolts. Fig. 4 is a perspective view of the cushion-block. Fig. 5 is a perspective view of one of the clips shown in the right-hand fastenings in Figs. 1 and 2. Fig. 6 is a similar view of one of the combined fish-plates and clips for a joint-fastening, and Fig. 7 is a vertical section through one of the inclined clips.

Like letters indicate the same parts in all the figures of the drawings.

Referring to the drawings by letters, A is a metallic tie of trough-shape, consisting of bottom  $a$  and sides  $a'$ , provided near each end in the upper edges of the sides with notches  $a^2$  to receive the base-flanges  $b^3$  of the rails B.

C is the cushion or seat for the rail. It is composed of a flat top  $b$ , vertical sides  $b'$ , and vertical ends  $b^2$ . The top  $b$  is long enough to project the thickness of the ends  $b^2$  beyond the sides of the tie, and just the same width as the base of the rail. The vertical sides  $b'$  extend to the base of the tie and are of a length to fit closely inside the sides thereof. The vertical ends  $b^2$  extend down only a short distance on the outside of the sides of the tie, are equal in length with the top width of the cushion, and are placed with relation to the sides so that a space is left between the sides  $b'$  and  $b^2$  just large enough to pass closely over the sides of the tie.

The sides bearing upon the bottom of the tie afford a secure and solid support and at the same time prevent any inward bending of the sides of the tie, while the ends assist in preserving the position of the cushion and serve to prevent spreading of the sides of the tie.

A clip-plate D (shown in detail in Figs. 5 and 6) passes down inside the trough of the tie against the sides  $b^2$  of the cushion. In the joint-fastening this plate is bent over to lie down upon the flange of the rails, as at  $d$ , and is continued up to act as a fish-plate, lying against the webs of the rails at  $d'$ .

In the fastening for other parts of the rail, as shown on the right hand of Figs. 1 and 2, the fish-plate feature is omitted as unnecessary. The plate is just long enough to pass between the sides of the tie until it reaches the height of the base of the rail. Then it widens out and is turned over, so as to lie on top of the base of the rail, forming a shoulder  $d^2$ , as shown, which rests against the side of the rail-notch when the fastening is in use.

In the joint-fastening the usual securing-bolts  $c$  are used, passing through the rail-webs and the bolt-holes  $c'$  in parts  $d'$  of plate D. (See Figs. 2 and 6.)

The joint-rails are held down and braced against spreading by inclined brace-clips E. These are provided with clip ends  $e$ , which



pass over and rest upon the clip portions  $d$  of the plates D, while their main portions  $e'$  incline downward away from the rails until their ends pass under bolts F, which pass through the sides of the tie and rest upon the base or bottom of the tie. This prevents the clips E from rising at their ends (outer) or spreading, and they are secured tightly down on the clip portions  $d'$  of plates D by means of hook-bolts G, which pass through them and engage the bottom of the tie through the holes therein. On their under sides the inclined clip-plates E are provided with angular ribs  $e^2$ , which bear horizontally against plates D and serve to press these plates closely against the cushion and rail when the nuts  $g$  on bolts G are turned down.

The advantages of my improved fastening will be obvious at a glance. The plates D being a continuation downward of the fish-plates and fitting tightly between the sides of the tie will prevent the endwise motion of the rail known as "creeping," while the pressure brought against the sides by the tendency to creep will be counteracted by the peculiar construction of my metallic cushion-block, which also serves especially under the rail-joint as a very effective bed for the rail. The parts are thoroughly braced in every direction, the inclined clips serving to hold the rails firmly down and the plates D against the rails, as well as to firmly brace against movement in either direction. The bolts which hold their outer ends down also assist in bracing and securing the sides of the tie.

Having thus fully described the construction, operation, and advantages of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combined clip and fish-plate D, having its body of a size and form to fit between the sides and rest upon the bottom of the tie without direct fastening thereto and its upper portion formed as a clip  $d$  and a fish-plate  $d'$ , the two latter portions being of a width greater than the main body, forming a shoulder  $d^2$ , as and for the purpose set forth.

2. The clip-plate D, having its main body of a size and form to fit between the sides and rest upon the bottom of the tie without direct fastening thereto and its clip portion  $d$  made wider, thereby forming a shoulder  $d^2$  to rest in the rail-notch on the top of the base of the rail, as and for the purposes set forth.

3. The metallic cushion-plate herein described, consisting of a flat top, downward-depending sides of a size to fit between the sides of the tie, and downward-depending vertical ends embracing the vertical sides of the tie, in the manner and for the purposes set forth.

4. The inclined clip-plate herein-described, consisting of a clip portion to rest above the flange of the rail, the angular rib upon the under side thereof, and the inclined portion long enough to reach the bottom of the tie and be secured against spreading, as and for the purposes set forth.

5. In combination, the tie, the rail, the inclined clip-plate resting above the flange of the rail at one end and upon the bottom of the tie at the other, the vertical securing-bolts, and the horizontal bolts passing through the sides of the tie above the lower ends of the inclined clip-plates, as and for the purposes set forth.

6. In combination, the rail, the cushion, the tie, the clip-plate D, the inclined clip-plate having an angular rib on its under side, and the horizontal and vertical bolts for securing the clips, in the manner and for the purposes set forth.

7. In combination with two abutting rails, the combined clip and fish-plate D, the cushion, the inclined clip-plate, and the horizontal and vertical securing-bolts, as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT MORRELL.

Witnesses:

S. BRASHEARS,

E. G. BRASHEARS.