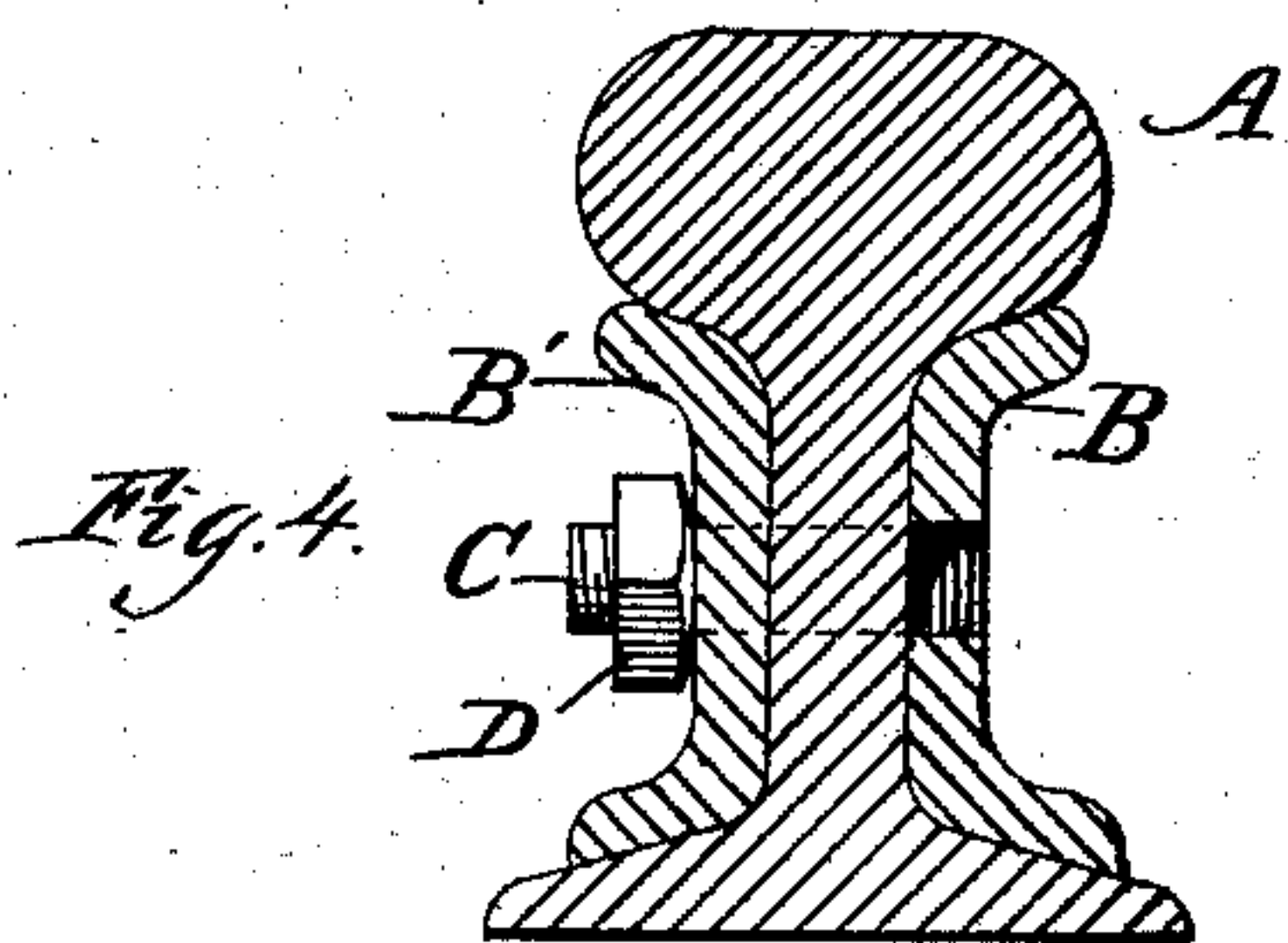
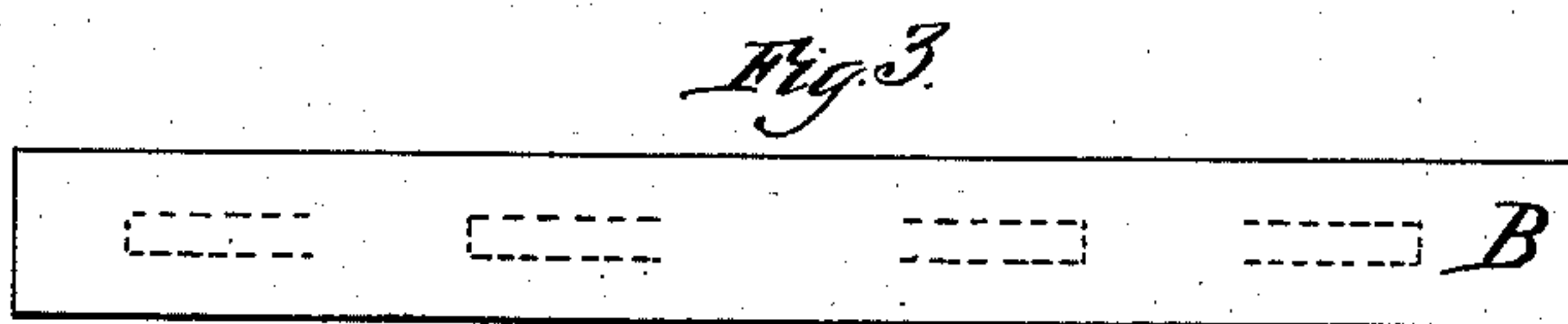
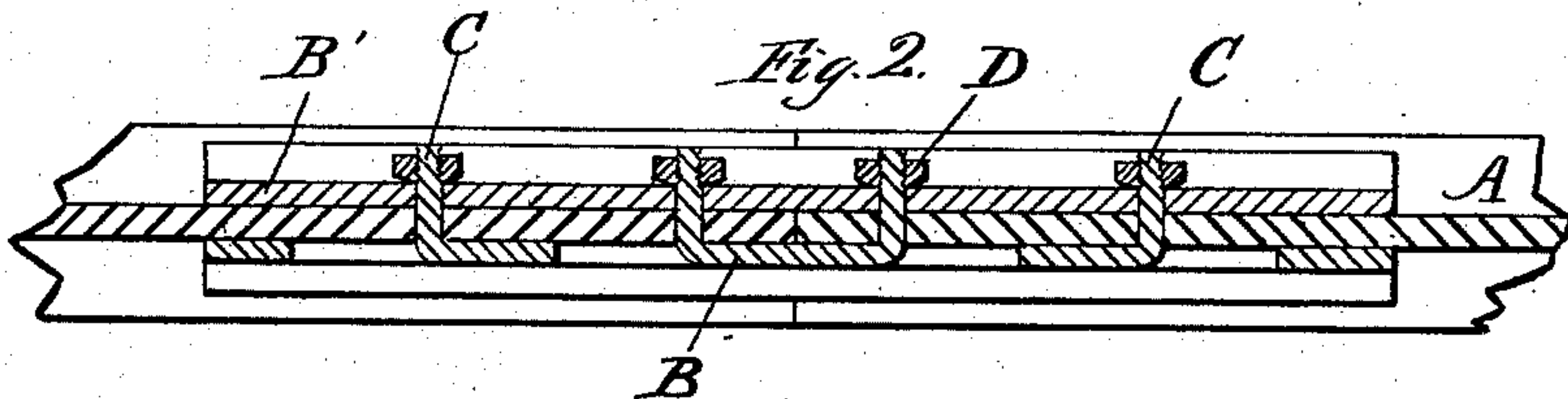
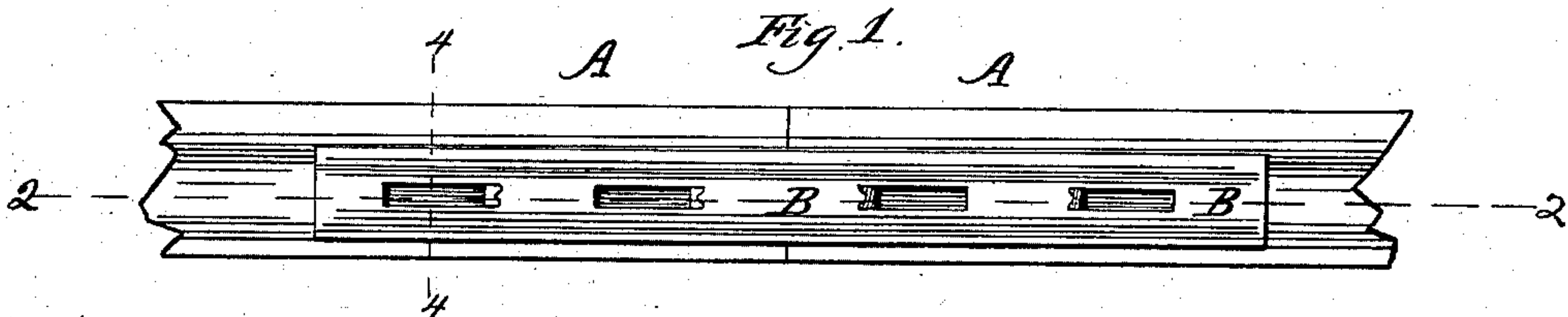


(No Model.)

J. M. AYER.  
Combined Fish Plate and Bolt.

No. 239,594.

Patented April 5, 1881.



WITNESSES—  
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# UNITED STATES PATENT OFFICE.

JOHN M. AYER, OF CHICAGO, ILLINOIS.

## COMBINED FISH-PLATE AND BOLT.

SPECIFICATION forming part of Letters Patent No. 239,594, dated April 5, 1881.

Application filed December 22, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. AYER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Combined Fish-Plate or Angle-Bar and Bolt; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation of my improvement as applied to a track-joint; Fig. 2, a horizontal section of the same, taken on the line 2 2, Fig. 1; Fig. 3, a side elevation of a fish-plate before the bolt is struck out; and Fig. 4, a cross-section on the line 4 4, Fig. 1.

My invention relates to joints for railway-rails in particular, but is applicable also for all analogous purposes. The great difficulty to be overcome with such joints, as is well known, is to secure the bolt with such firmness as to provide against its turning or moving and starting the nut, when in place, through the jarring and pounding of the rails caused by the moving trains.

My object is to overcome this difficulty; and to this end my invention consists in forming the angle-bar or fish-plate and bolts in one piece, the bolts being formed from the body of the plate by cutting through the latter and bending out the portion so cut, all as herein-after more fully set forth.

The manner in which I carry out my invention is clearly illustrated in the accompanying drawings, and is as follows:

A A are adjacent rails of a railway-track, having bolt-holes through them, as usual, which bolt-holes may be either square, oval, round, or of any other desired form.

B is the male angle-bar or fish-plate, as the case may be, and C C the bolts formed by cutting through the said plate three sides of a rectangle of suitable length for the bolt, as indicated by dotted lines in Fig. 3, stamping out the portion so cut to a position perpendicular

to the plate, and screw-threading its outer end to receive the nut. These bolts may be either square, oval, round, or any other form corresponding to the shape of the holes in the rails.

B' is the female fish-plate or angle-bar, provided with holes to correspond with the position of the bolts C and bolt-holes in the rails, and D the nuts screwing upon the bolts, as usual.

It will be seen that with my construction the turning of the bolt in the rail is an impossibility, since it forms a part of the fish-plate or angle-bar itself, and that such turning or starting is equally impossible, whether the bolt is made square, round, or of any other form. This being the case, the necessity for nut-locks is done away with, though they may still be used, of course, if desired. Moreover, my bolt possesses, in point of economy of manufacture, great advantages over every device for the same purpose heretofore contrived, since it takes less metal than the old forms of separate bolts and plates, and may be made complete in one continuous operation.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combined fish-plate or angle-bar and bolts herein described, each bolt being formed by cutting through said bar three sides of a rectangle of suitable length for the bolt, stamping out the portion so cut to a position perpendicular to the bar, and screw-threading its outer end, as set forth.

2. The combination of the plate B, bolts C, each formed by cutting through said plate three sides of a rectangle, bending out the portion so cut, and screw-threading its outer end, plate B, provided with holes for the passage of said bolts, and nuts D, substantially as described, and for the purpose set forth.

JOHN M. AYER.

In presence of—

P. C. DYRENFORTH,  
J. CORRIGAN.