

(No Model.)

B. E. EDWARDS.
RAIL JOINT.

No. 547,575.

Patented Oct. 8, 1895.

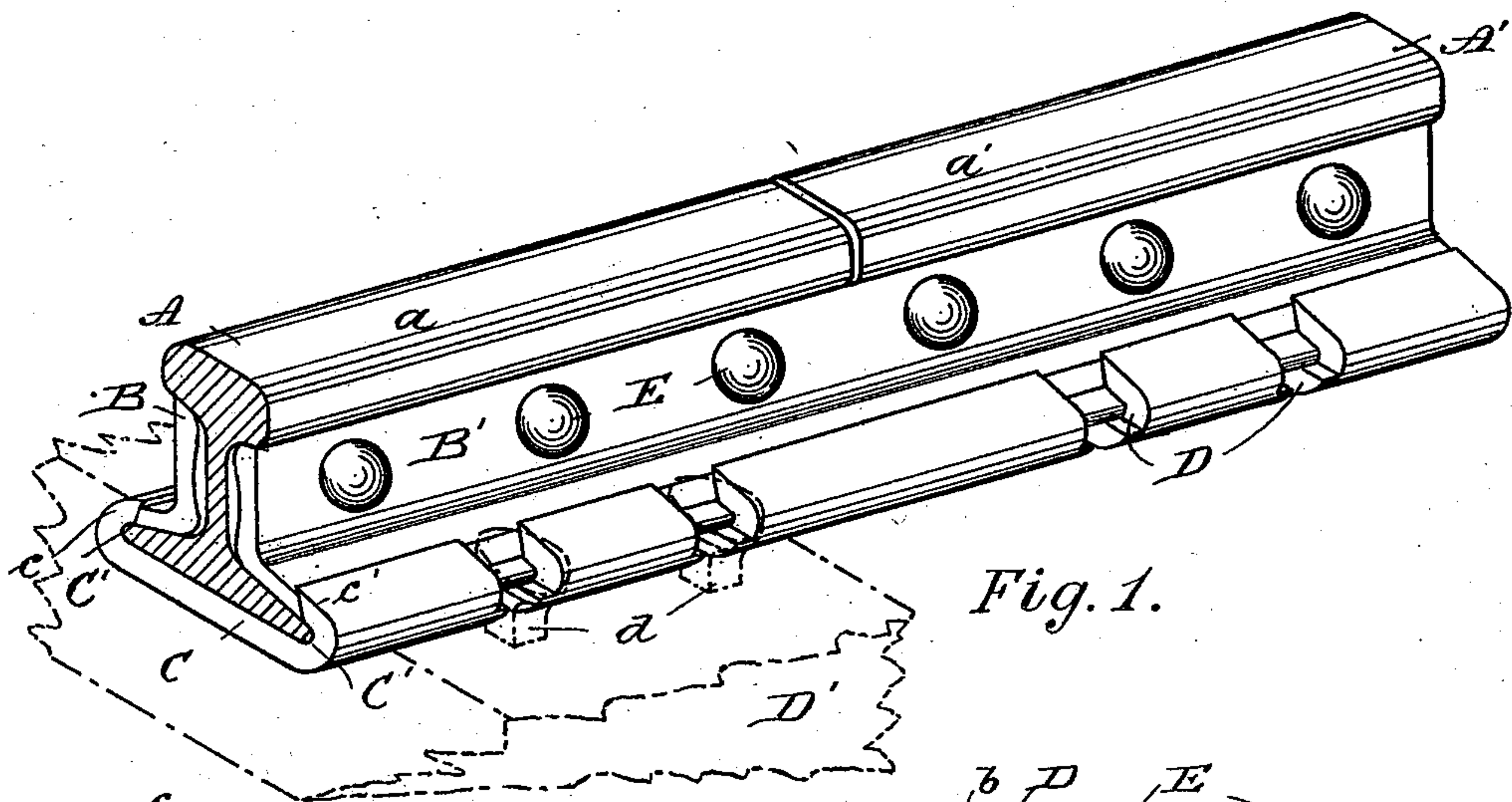


Fig. 1.

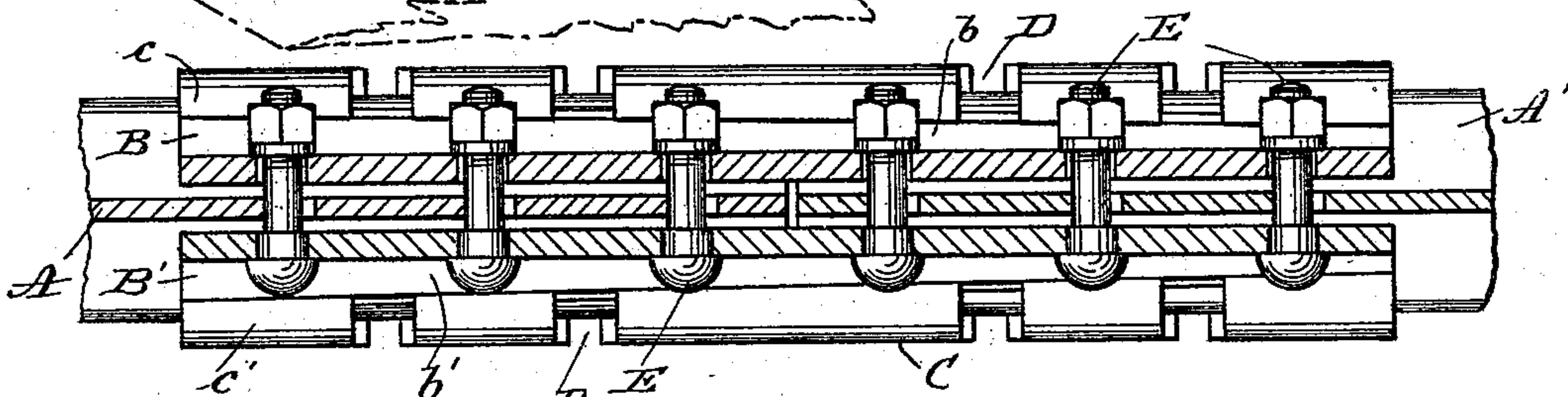


Fig. 2.

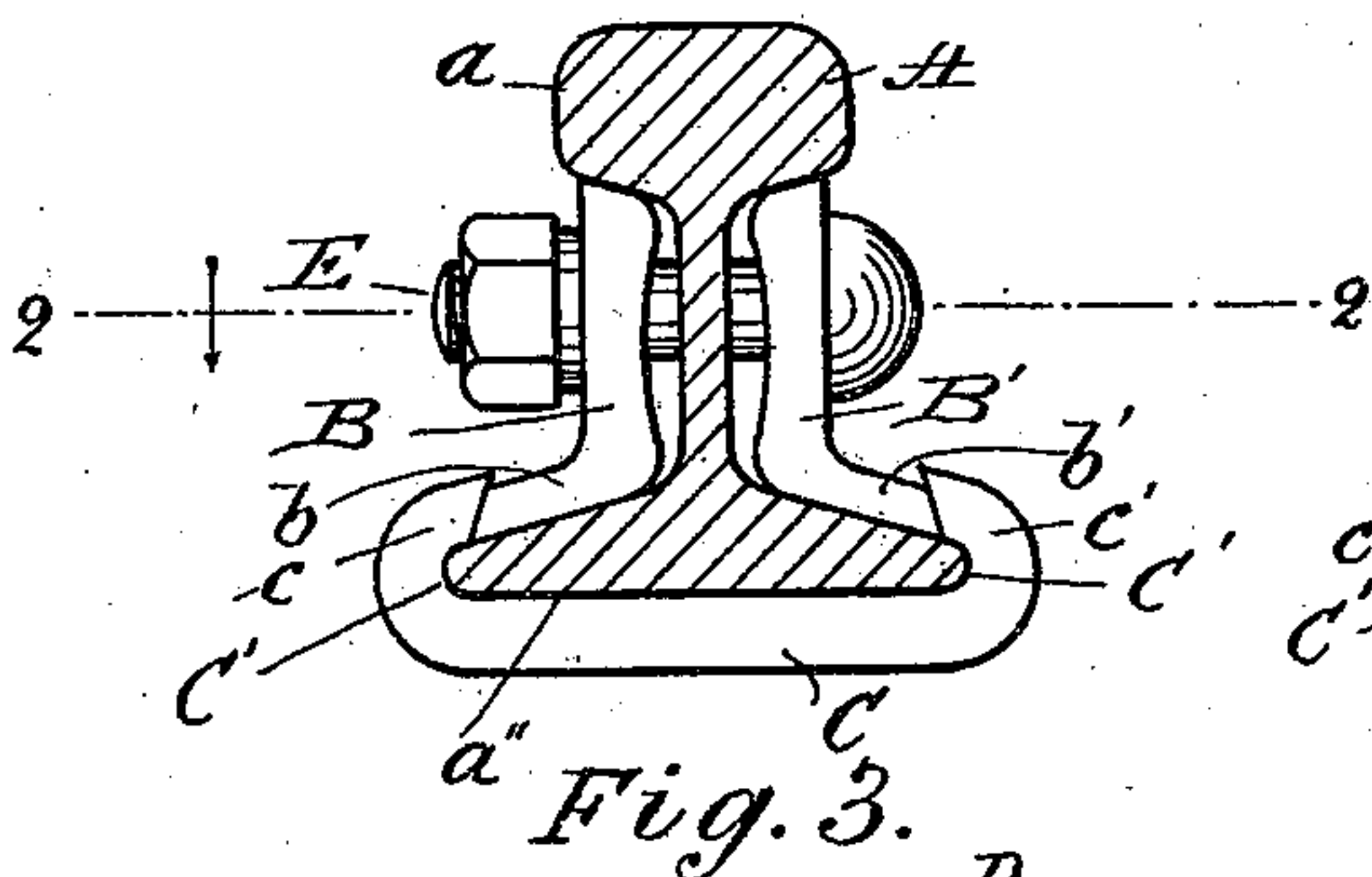


Fig. 3.

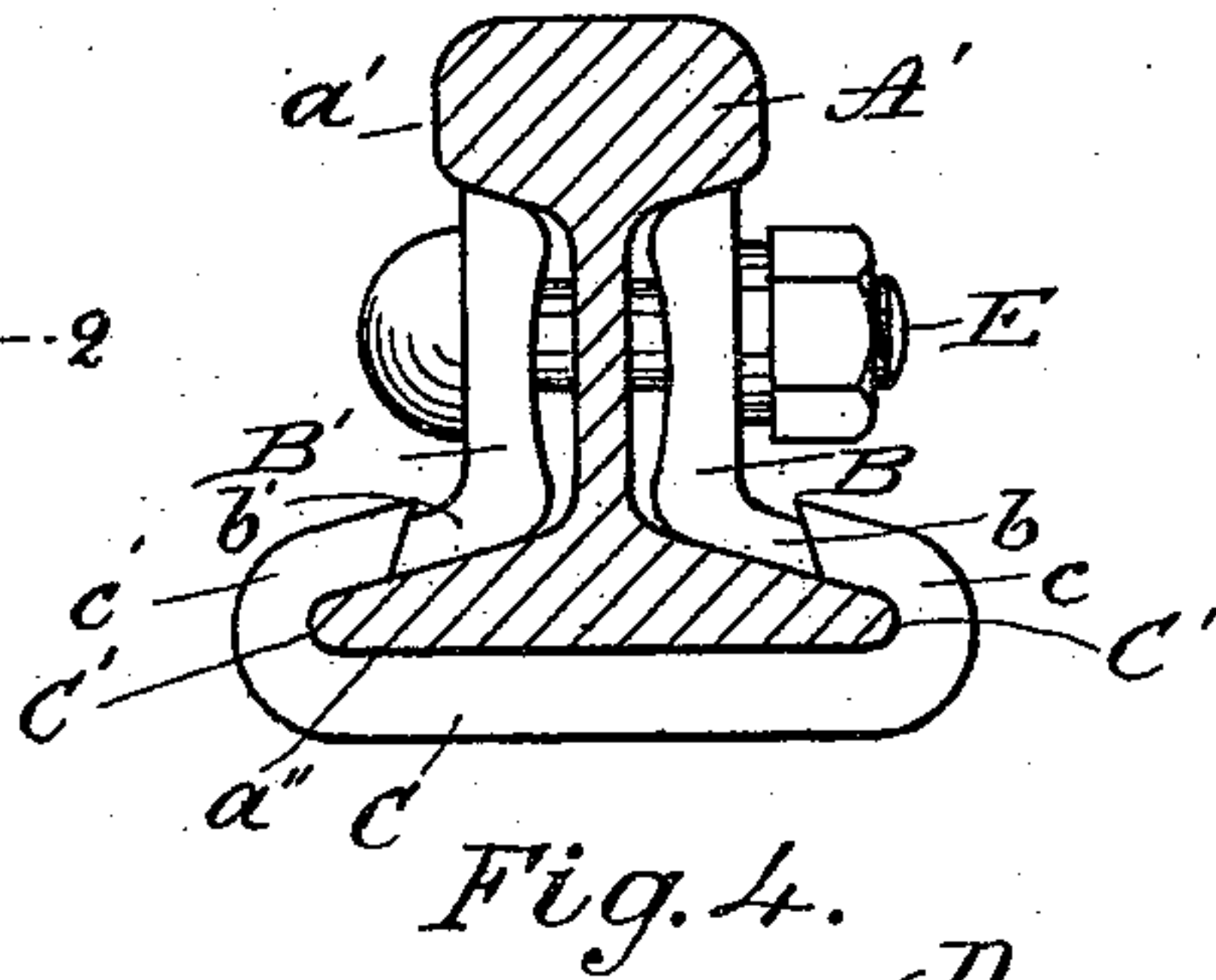


Fig. 4.

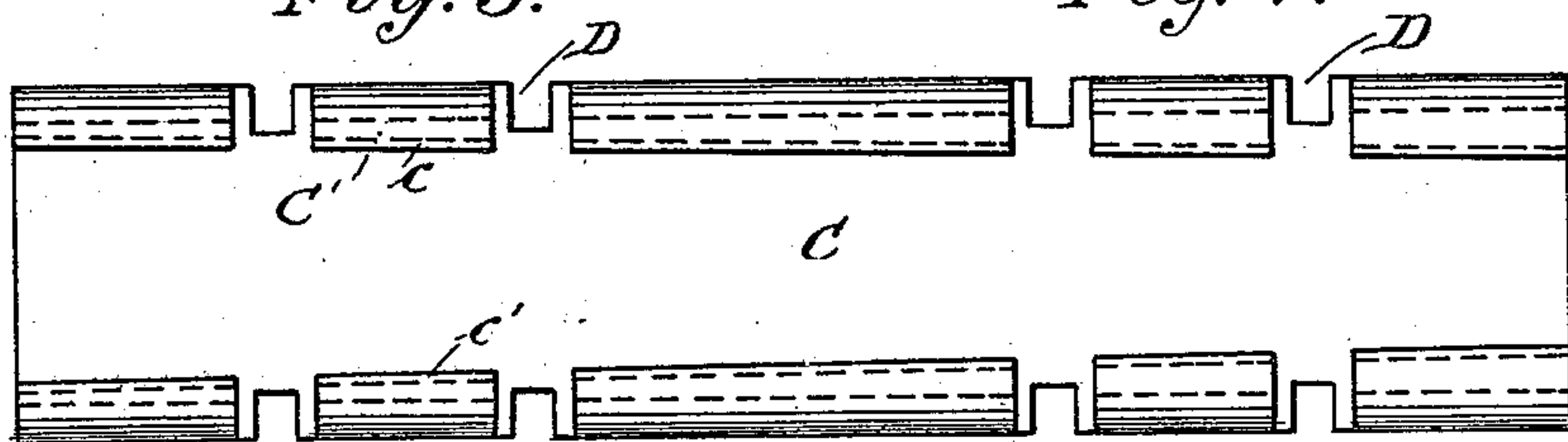


Fig. 5.

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RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 547,575, dated October 8, 1895.

Application filed April 4, 1895. Serial No. 544,372. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN E. EDWARDS, a citizen of the United States, residing at La Crosse, in the county of La Crosse and State of Wisconsin, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

It is well known among railroad men that the larger proportion of damage done to rolling-stock and to the track of railroads is caused by defective rail-joints. Many devices have heretofore been invented with the idea of remedying this difficulty, but so far as I am aware no thoroughly practical device has ever been introduced to public notice.

The object of my invention is to provide a rail-joint which will be cheap and simple, will be easy to manufacture and to apply, one which will be lighter and more efficient than those heretofore known and will form a doubly-wedged truss of the fish-plates and distribute the strain upon the rail ends more effectively throughout the entire length of the parts comprising the joint, and one in which the various parts will be so arranged that any wear may be quickly taken up by adjusting the parts relative to each other.

My invention comprises the features of construction and combinations of parts herein-
after fully set forth and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a fragmental perspective view of a rail-joint embodying my invention. A fragment of a tie is shown in dotted lines beneath the front end of the joint. Fig. 2 is a plan view showing the parts in longitudinal mid-section on line 2 2, Fig. 3, leaving the bolts intact. Fig. 3 is an end view, looking at that end of the joint which is to the left in Fig. 1. Fig. 4 is a view looking at that end of joint which is at the right in Fig. 2. Fig. 5 is a plan view of my improved base-plate, which is the essential feature of my invention.

In the drawings, A A', respectively, represent two rail ends, and BB' are two fish-plates, which are arranged upon opposite sides of said rail ends and secured thereto by means of the ordinary bolts E. These fish-plates preferably have their flanges b b' tapering toward one end, as shown in Figs. 1 and 2.

The base-plate C is made integral and preferably of wrought metal. It is provided with upturned flanges c c', which are arranged to form a groove C' upon each side of the base-plate in which to seat the base of the rails A A', as clearly shown in Figs. 1, 3, and 4. These flanges c c' are made tapering toward one end, as shown in Figs. 2 and 3, and correspond to the tapering flanges of the fish-plate, as shown in Fig. 2, so that when the fish-plates are in position upon opposite sides of the rail and the grooves C' chamber the edges of the base-flanges of the rail, and the base-plate is driven forward against the inclined tapering flanges of the fish-plates, the fish-plate flanges will thus be forced toward each other and caused to bind tightly between the head a a' and the base a'' of the rail, thus forming, as clearly shown in Figs. 3 and 4, a perfect truss, the strain of which is supported by the base-plate C, while the edges of the base-flanges of the rails are also chambered in the grooves of the base-plate and are engaged by the walls thereof at the sides and top.

In order to bring the base-plate and the flanges of the fish-plate firmly in contact with the rail, I make the edges of the fish-plate flanges beveled downward and outward away from the top face of such flanges and bevel the flanges of the base-plate to correspond thereto, so that when the base-plate is driven forward to wedge the fish-plate flanges toward each other they also wedge such flanges downward upon the top of the base of the rail, thus bringing the base-plate firmly into contact with the bottom of the rail, so that thereby a rigid connection is made of all the parts, and when strain is placed upon the joint it is distributed over the entire length of the fish-plates, the base-plate and the rail ends embraced between the fish-plates.

D represents spike-holes in which to seat the spikes d, (shown in dotted lines in Fig. 1,) which spike the base-plate and rail to the tie D'. The tops of the flanges of the base-plate are cut away, as shown in Figs. 1, 2, and 5, in order to allow the spike-heads to engage with the top of the base of the rail to thus allow the use of a spike of ordinary length for spiking the joint to the tie.

In practice, to apply the joint (reference

being made to Figs. 1 and 2) the base-plate C is slipped upon the end of the rail A', with the flanges *c c'* embracing the edges of the base of the rail. Then the fish-plates B B' are placed in position upon the ends of the rails, as shown in Figs. 1, 3, and 4, and the bolts E are placed in position, as shown in Figs. 1 and 2, to bind the fish-plates firmly in position. Care is taken to arrange the fish-plates with such relation to the rail that when the base-plate is driven forward the bolts E will be brought firmly into contact with the walls of the bolt-holes in the rails, as shown in Fig. 2, thus to prevent the fish-plates from afterward slipping or working forward out of engagement or wedged position with relation to the base-plate. When the fish-plates are thus placed in position, the base-plate, which was previously slipped upon the end of the rail A' and is slipped forward until it is brought into the position shown in Figs. 1 and 2, and is driven forcibly forward or toward the left, the tapering flanges *c c'* wedging against the tapering flanges *b b'* of the fish-plates, forces said flanges inward toward each other, and also downward against the base of the rail, at the same time bringing the base-plate firmly against the base of the rail, thus forming a rigid union of the parts, which makes the joint practically as strong as any portion of the rail, and avoids to a large extent the destructive pounding of the wheels upon the rail-joint, which is present in the most approved form of joint now in use.

The essential and most characteristic features of my invention are the beveled upturned edges of the base-plate, which extend over the edges of the base-flanges of the rails and inward toward the web of the rail, and are there beveled and tapered to receive the beveled and tapered lower flange of the fish-plate, so that the same will wedge down upon the base-flange and inward toward the web of the rail, and the fish-plate will thus be made to form a light rigid truss wholly resting on the base-flange of the rail. This gives a stronger and more rigid trussed joint with a given weight of metal than has heretofore been known in rail-joints. The upper face of the base-flanges of the T-rails slope from the web of the rail down toward the edges of the flanges, and since the edges of the flanges of

the base-plate are oblique to each other and extend along above the top of the base-flanges, respectively, the fish-plates having the tapering flanges *b b'*, respectively, when driven into place, as indicated in the drawings, will act with a double wedging action, which operates very effectively downward upon the base-flanges of the rail to clamp them firmly, as well as acting toward the web of the rail to clamp it. If the parts become worn, so that the joint is not sufficiently rigid, the spikes *d* can be removed, the base-plate C driven forward to take up the wear, the old spike-holes in the tie plugged up, and the spikes again driven to hold the base-plate in its wedging position.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A rail joint comprising the rail ends; two fish plates, arranged on opposite sides of the rail ends and having flanges tapering toward one end of the joint; a base plate having upturned tapering flanges arranged to extend up over and inward to embrace at sides and top, the edges of the base flanges of the rail ends and to also wedge the fish plate flanges toward each other; the bolts arranged to bolt the fish plates to the rail ends and means for holding the base plate in its wedging position.

2. A rail joint comprising the rail ends; two fish plates, arranged on opposite sides of the rail ends and having flanges tapering in width toward one end of the joint; the base plate having tapering upturned flanges arranged to extend up over and to embrace the base flanges of the rail ends at the edges and on top of the flanges and to also wedge the fish plate flanges toward each other, the edges of the fish plate flanges and the edges of the base plate flanges being beveled and tapered to cause the base plate to wedge the fish plate flanges down against the base of the rail; and also to wedge them toward each other the bolts arranged to secure the fish plates to the rail ends, and means arranged to retain the base plate in its wedging position.

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