

(No Model.)

F. E. BUXTON.
RAIL BOND.

No. 539,931.

Patented May 28, 1895.

FIG. 1.

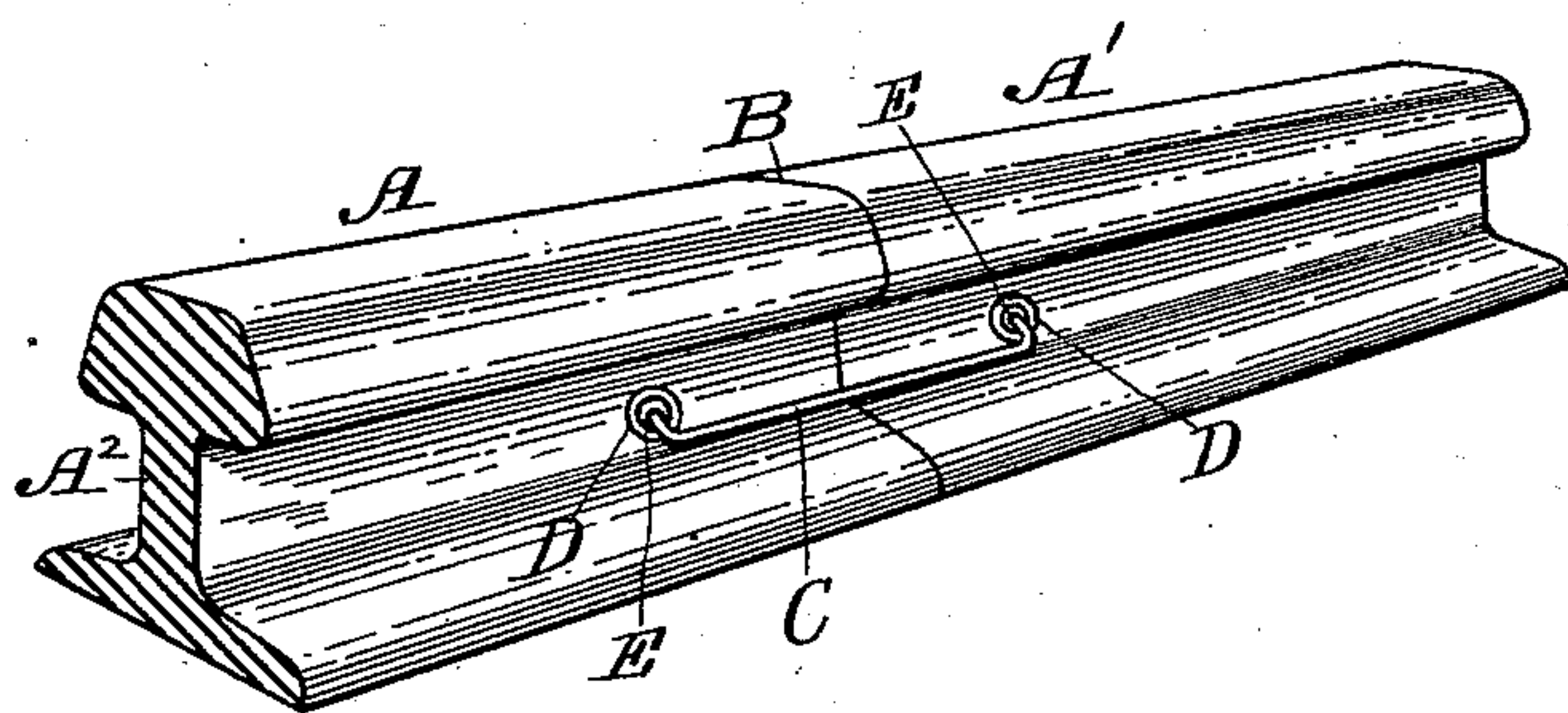


FIG. 2.

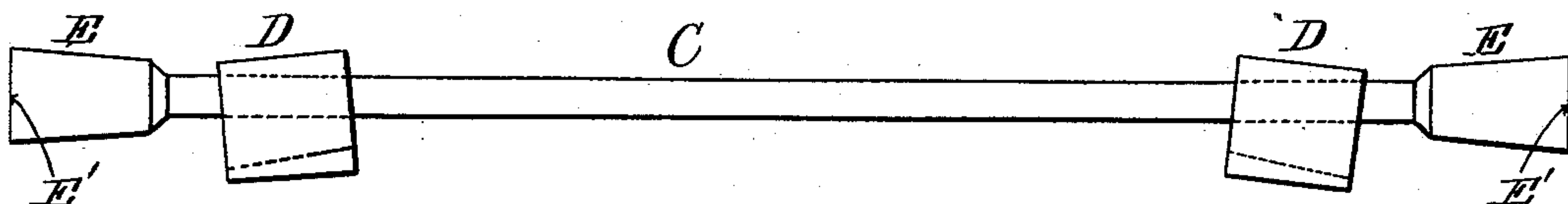


FIG. 3.

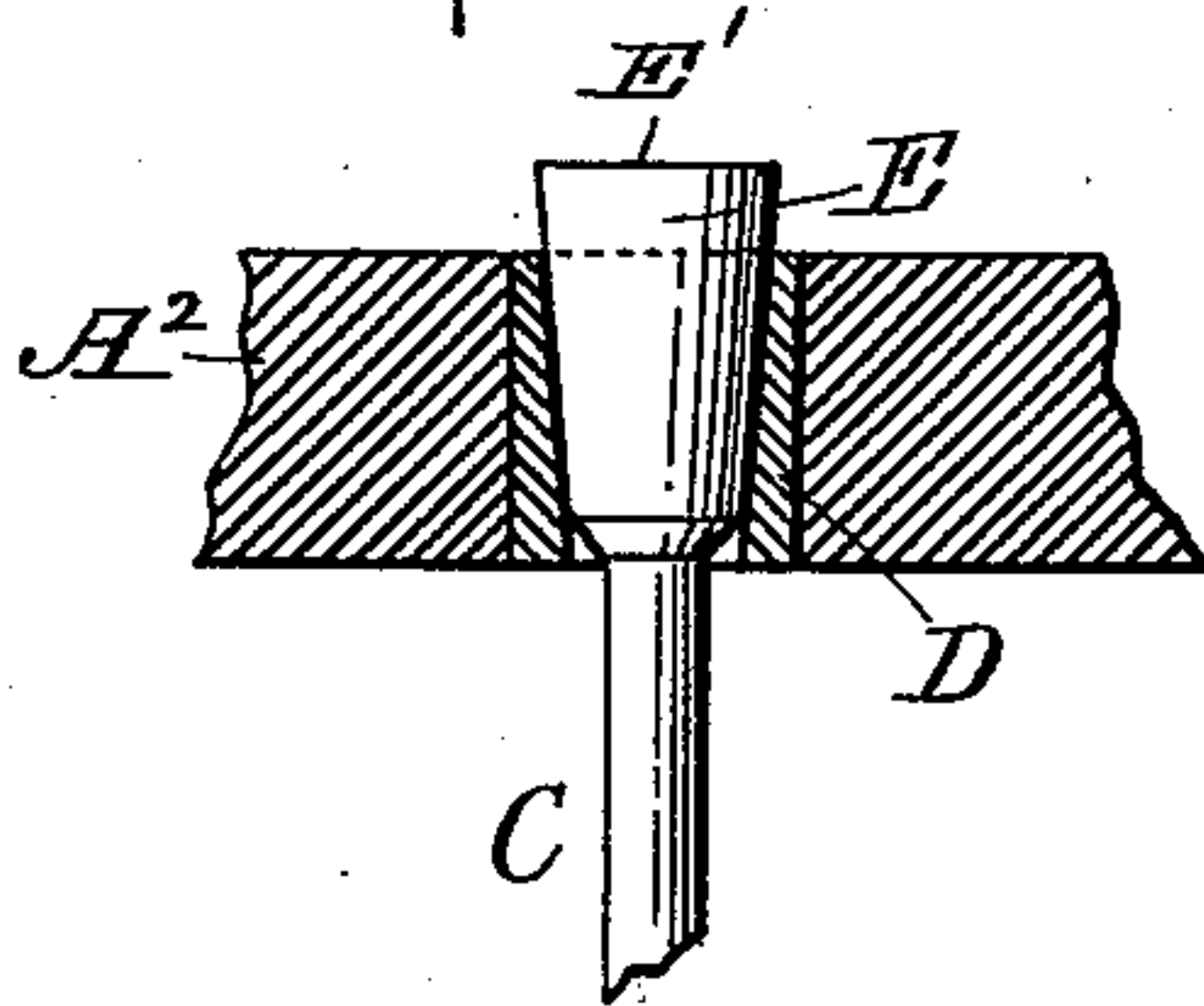
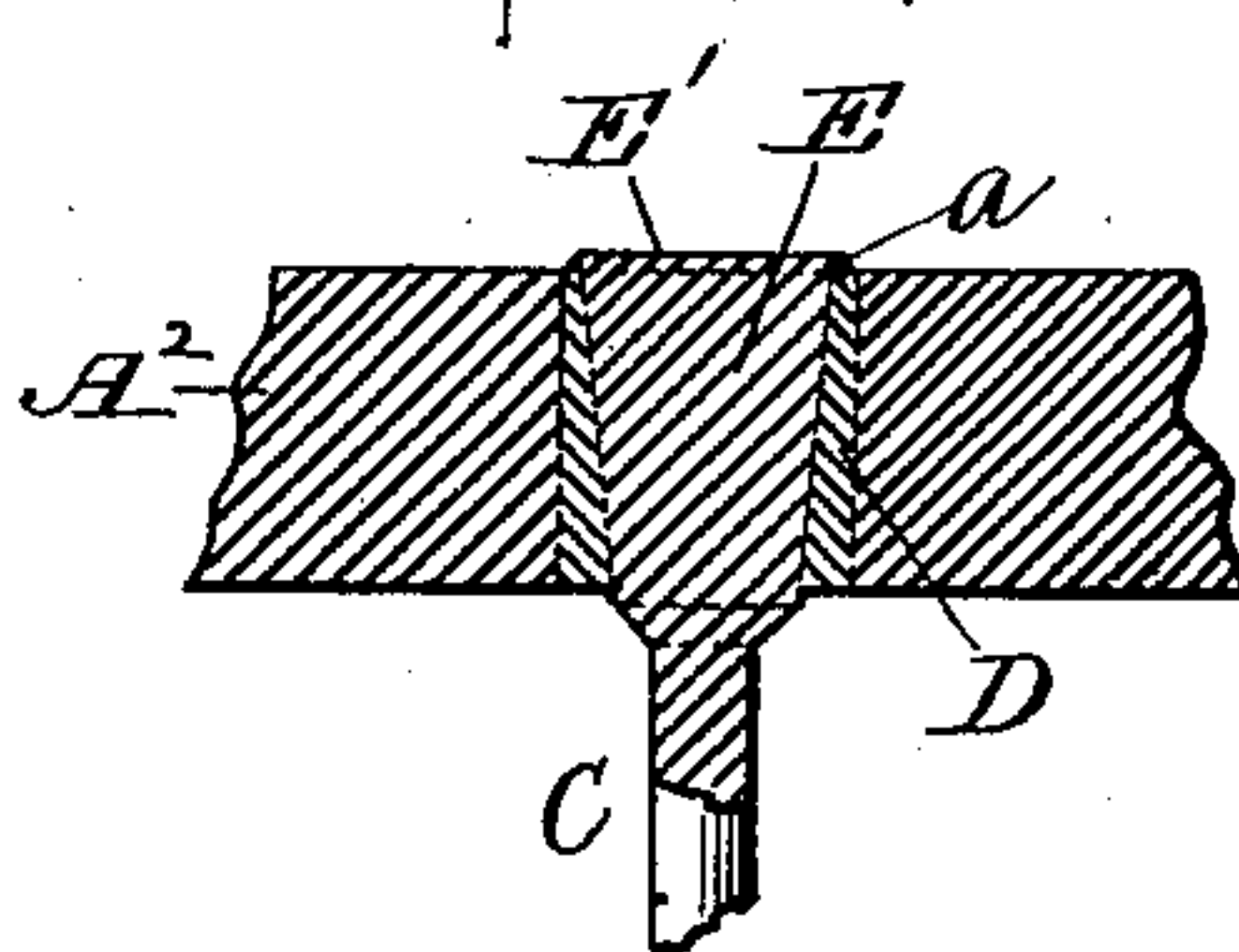


FIG. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

FRANK E. BUXTON, OF WORCESTER, MASSACHUSETTS.

RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 539,931, dated May 28, 1895.

Application filed April 15, 1895. Serial No. 545,781. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. BUXTON, of the city and county of Worcester and State of Massachusetts, have invented a new and useful Method of Making and Applying Electric Rail-Bonds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents part of an electric rail-road-rail with my improved bond applied thereto. Fig. 2 represents, upon an enlarged scale, one of my said improved rail-bonds ready to be applied to the rail. Fig. 3 represents one end of the rail-bond partially applied to a section of the rail, and Fig. 4 shows a similar view with the rail-bond completed.

The object of my invention is to produce an electric rail-bond, which shall be simple in construction, easily applied, and whereby a perfect electric contact may be obtained between the connecting wire or rod of the bond and the rail-sections, and consists in making and placing two loose collars upon the bond, connecting wire or rod, whose outer sides are substantially parallel, and whose inner sides are funnel-shaped and converging inward toward each other when on said connecting wire or rod; then upsetting the two ends of the connecting wire or rod to form enlarged, cone-shaped heads converging toward each other, and of corresponding size and shape to the inner sides of the aforesaid collars, with the exception of being preferably a trifle larger in cross-diameter; then bending the connecting wire or rod and inserting the ends through the openings in the rail-flange with the loose collars fitted in said openings, and finally driving the cone-shaped heads into said collars by hammering upon their outer ends, all as will be hereinafter more fully set forth.

In order that others may better understand the nature and purpose of my said invention, I will now proceed to describe it more in detail.

In the drawings, A A' represent two short sections of an electric rail-road rail with the ends butted together, as is indicated by the joint-line B.

C is the connecting wire or rod, D D the col-

lars thereon, and E E the upset, cone-shaped heads on the ends of said wire or rod.

The bonding-device is made as usual, from a piece of copper or other suitable wire or rod, of the proper size and length, and over this are first placed the two collars D D, as is shown in Fig. 2. Said collars are of the proper exterior, transverse diameter to fit the openings in the rails, and preferably about equal in length to the thickness of the rail-flanges A², in which they fit, as is shown in Figs. 3 and 4. The outsides of the collars are made substantially parallel, while their inner sides are funnel-shaped, as previously stated, and they are placed on the wire or rod C, in reversed positions, with their openings converging toward each other, as is indicated by dotted lines in Fig. 2.

After placing the collars on the connecting wire or rod, the ends of said wire or rod are upset, with the collars on it, to form the enlarged, cone-shaped heads E E, in any well-known manner. Said cone-shaped heads are made converging inward toward the wire or rod C, or larger at their outer ends, and are designed in practice to be just a trifle larger than the longitudinal funnel-shaped openings in the collars D D, so that when driven therein, the latter will be expanded slightly, or to such an extent as to completely fill the intervening joints between the rail, collars and heads, as hereinafter specified.

The collars D D, having been made and fitted over the wire or rod, C, and the ends of said wire or rod upset as aforesaid, completes the bond-device ready to be applied to the rails, and this is the condition in which it is shipped for use. In applying the same, the wire or rod C is first bent into the proper shape, about as shown in Fig. 1, and the ends passed through the transverse openings in the rail-sections, at each side of the joint B. The collars D D are then fitted in said rail openings, and the heads E E drawn into the same, and finally said heads are driven tight into the collars by hammering upon the ends E' E' thereof, until they are driven in as far as they will go, as is shown in Fig. 4, which operation, as will at once be apparent, causes the parts to be compressed into practically a homogeneous mass, with the joints scarcely

perceptible. A perfect contact and bond is therefore produced between one rail section and another, and the operation of applying the same, as will be seen from the above, is very simple and expeditiously performed. After the heads have been driven in as far as they will go, as aforesaid, their outer ends may be riveted over the outer ends of the collars, as is shown at *a*, in Fig. 4, to more securely fasten the parts in position.

I am aware that an electric rail-bond has been made by driving a collar into the rail opening around the end of a connecting wire or rod of equal diameter throughout its length, and which is fastened by riveting the outer end of the collar which projects outside of the rail-flange, by means of a separate tool used for driving in said collar, and by also riveting the outer end of the wire or rod, but I am not aware that the method I have adopted for driving an upset, cone-shaped head, formed on the end of the wire or rod, into a collar, previously fitted into the rail, has been patented, or in use prior to my invention.

The advantage of my method over the old will be obvious to those skilled in the art to which my invention appertains, or by any one who has attempted to drive a collar made of soft metal endwise into a compressed or tight-fitting position. It may be driven readily at first, but as soon as it begins to bind from friction, it is liable to "buckle" or "squash

out" laterally, and cannot be driven thoroughly into place, especially if said collar is thin in cross-section. This objection is wholly removed by my method of driving the central, solid heads E into the collars D, as previously described.

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

1. An electric rail-bond comprising a bond wire or rod having substantially cone-shaped heads upset at either end and two loose collars having conical bores of slightly smaller diameter than the diameter of said heads.

2. In an electric rail-bond, the combination with supporting rails having suitable apertures formed therein, of conically bored collars fitted in said apertures, substantially cone-shaped heads driven into said collars and a wire or rod connecting said heads.

3. In an electric rail-bond, the combination with supporting rails provided with suitable apertures, of collars having parallel outer sides and conical bores fitted in said apertures and a connecting rod or wire having conically shaped heads upset at either end which enter said conically bored collars, said heads having a slightly larger diameter than the bore of said collars.

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Witnesses:

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