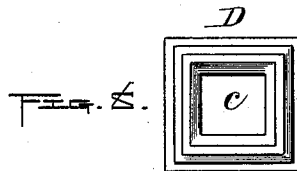
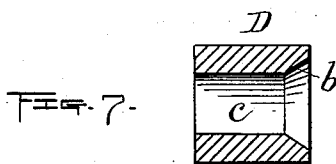
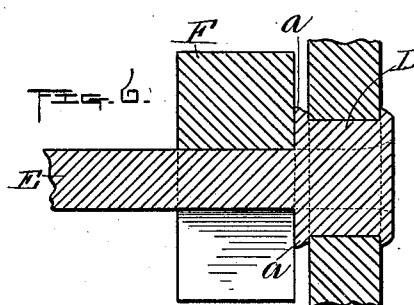
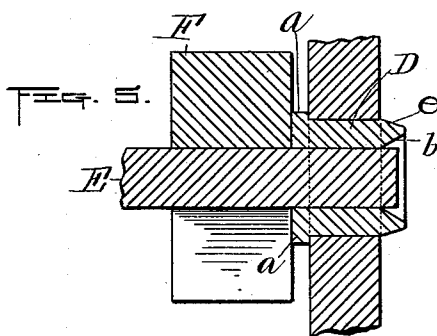
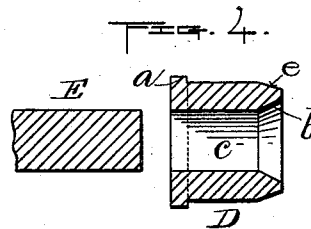
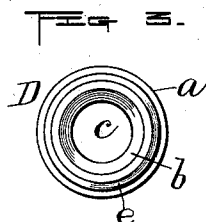
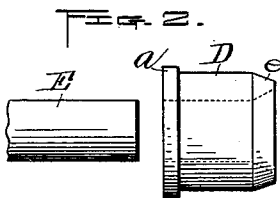
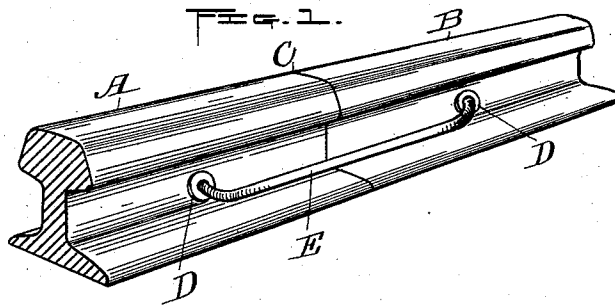


(No Model.)

G. H. SCOTT.
ELECTRIC RAIL BOND.

No. 567,257.

Patented Sept. 8, 1896.



Witnesses;

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UNITED STATES PATENT OFFICE.

GEORGE HASKELL SCOTT, OF WORCESTER, MASSACHUSETTS.

ELECTRIC RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 567,257, dated September 8, 1896.

Application filed March 9, 1896. Serial No. 582,365. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HASKELL SCOTT, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in 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 a perspective view of part of two rails with their ends abutting and my improved bond device applied thereto for obtaining an electric connection between said rails. Fig. 2 represents detached views of the two parts composing one end of said bond device. Fig. 3 is an outer end view of one of the cylindrical collars of the device, hereinafter described. Fig. 4 is a central longitudinal section through the parts shown in Fig. 2. Fig. 5 is a longitudinal section through said parts shown in Fig. 2 and part of a rail-flange with the cylindrical collar fitted in the opening of said rail-flange and a metal block fitted over the connecting-rod against the head of said cylindrical collar preparatory to hammering upon its opposite end to fasten the device in the rail, as will also be hereinafter described. Fig. 6 represents the parts shown in Fig. 5 after the bond device has been thus fastened in the rail, and Figs. 7 and 8 show modifications in the construction of the cylindrical collar hereinafter described.

My invention relates to that class of electric rail-bonds in which a plain cylindrical connecting rod or wire is used between the devices fitted in the openings in the rails.

The object of my invention is to produce an electric rail-bond, of as simple construction as possible, which may be easily and securely applied to the rails, and whereby a perfect electrical connection may be maintained between said rails.

Said invention consists of a connecting rod or wire and two collars, one for each end of said rod or wire, adapted to fit over the ends thereof and in the openings in the rails and made cylindrical in shape, also provided with an external annular rib or flange at its inner end and an internal annular bevel at its outer end flaring outward from its longitudinal opening, and also preferably having the ex-

terior of its outer end beveled in the opposite direction to said internal bevel, 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.

Referring to the drawings, A B represent parts of two rails with their ends abutting, as is indicated by the division-line C.

D D are the cylindrical collars which fit in the rail-flange openings, and E the connecting rod or wire extending between said collars.

The essential features of my invention consist in the special construction of the collars D D and the manner of fastening the same to the ends of the connecting rod or wire and in the openings of the rail-flanges. Said collars are made cylindrical in shape upon both their outer and inner surfaces, and are also made of the proper size to fit tight in the openings of the rail-flanges when driven therein. Their longitudinal openings are of the proper size to admit of the ends of the connecting-rod being easily inserted therein, and to also fit snugly when thus inserted. Upon what is to be the inner end of each collar, when fitted in the rail, as aforesaid, is formed an external annular rib or flange *a*, adapted to bear against the inner side of the rail-flange when said collar is fitted in place. The outer end of each collar is also provided with an internal bevel *b*, flaring outward from its longitudinal opening *c*, and an external converging bevel *e* may also be formed upon said end, if desired; but I do not limit myself to said external bevel, as it is not an essential feature to my invention.

In Fig. 7 of the drawings I have shown one of the collars provided with only the internal bevel, the outer edge of the end being made square. While this construction is not as desirable as to have both edges beveled, I reserve the right to thus make the collars, if desired, as previously stated. I also reserve the right to make the collars of square form in cross-section, as is shown in Fig. 8, or other shapes adapted to fit the shape of the connecting-rod upon which they are used.

In applying my improved rail-bond to the rails the collars D D are first driven into the openings in said rails. The ends of the con-

neeting rod or wire are then inserted (at the ribbed or flanged ends of the collars) into the longitudinal openings of said collars and pushed through to within about one-sixteenth of an inch of the outer ends of the collars, as is shown in Fig. 5. A metal block F is now placed and held by one hand against the inner end of one of the collars, as is shown in Fig. 5, and with an ordinary flat-headed hammer in the other hand said collar is struck a number of blows squarely upon the beveled end, the result of which is to first cause the collar to "buckle" or be forced out laterally at the center, and then, as the blows are continued, to head over onto the outer surface of the rail-flange around its opening, and by the time the end of the collar is flattened down to a level with the end of the connecting-rod, so that the hammer will strike thereon, said rod is so securely held against longitudinal movement in the opening of the collar that by the continued hammering upon the end of said collar and the end of the rod both are perfectly headed over, the collar onto the rail-flange, as aforesaid, and the rod onto the internal bevel *b* of said collar, as is shown in Fig. 6, thereby securely holding the bond from longitudinal movement in the rail-flange opening. Said hammering operation also results in forming a very perfect surface connection between the rail, collar, and connecting-rod. In fact, the connection between said parts in practice is so perfect that when cut through in section the lines of division between the parts are scarcely perceptible. This result of so perfectly heading and uniting said parts is mainly due to the employment of the internal bevel *b* on the outer end of each collar D. By thus beveling said ends the impact of the hammer is first directed against the central longitudinal portion of the collar, and consequently causes it to be forced or "squashed" out laterally at the center before it commences to head. It also facilitates the heading operation, as the natural tendency of the stock as it is hammered down toward the level of the end of the connecting-rod is to spread rather than to be forced laterally toward the center. Then, again, by the use of said bevel, when the end of the connecting-rod is reached in the hammering operation, it is permitted to spread or flatten out against said beveled surface, and thus forms a very perfect and secure clench in the collar to hold it from being pulled out or becoming loose. Should it become at all loose, it may be readily tightened again by a

few blows of the hammer. Not only is the outer end thus securely held, but, owing to the hammering upon the outer end against the metal block at its inner end, the collar is also headed and forced out laterally at said inner end, and thus produces a tight connection throughout its entire length to hold it securely from movement longitudinally in either direction.

It is obvious that while the rib *a* is a desirable feature in the construction, not being absolutely essential, I reserve the right to dispense with the same, as is shown in Fig. 7, if desired.

From the foregoing description it is obvious that my improved bond may be easily and quickly applied, and when thus applied produces a perfect and secure bond connection for the electric current between one rail and another.

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

1. An improved electric rail-bond, comprising in combination a connecting rod or wire, and two collars, one for each end of said rod or wire, adapted to fit over the ends thereof, and in the openings in the rails, and made cylindrical in shape, also provided with an external, annular rib or flange at its inner end, and an internal, annular bevel at its outer end flaring outward from its longitudinal opening, and also preferably having the exterior of its outer end beveled in the opposite direction to said internal bevel, substantially as and for the purpose set forth.

2. The combination of the rail and the connecting rod or wire, with the collar D, adapted to fit in the usual transverse opening in said rail and over the end of said connecting rod or wire, and having the internal, annular bevel *b* flaring from its longitudinal opening, whereby, when said beveled end of the collar is hammered against a metal block, placed over the connecting rod or wire against the inner end of said collar, the central portion thereof will be first forced or squashed out to hold the rod or wire in place, and then, by continued blows, headed, and the end of the rod or wire also headed to securely hold the parts and form a perfect electric bond connection, substantially as set forth.

GEO. HASKELL SCOTT.

Witnesses:

A. A. BARKER,
W. B. NOURSE.