

(No Model.)

J. McLAUGHLIN.  
BOND FOR ELECTRIC RAILWAYS.

No. 567,841.

Patented Sept. 15, 1896.

FIG 1

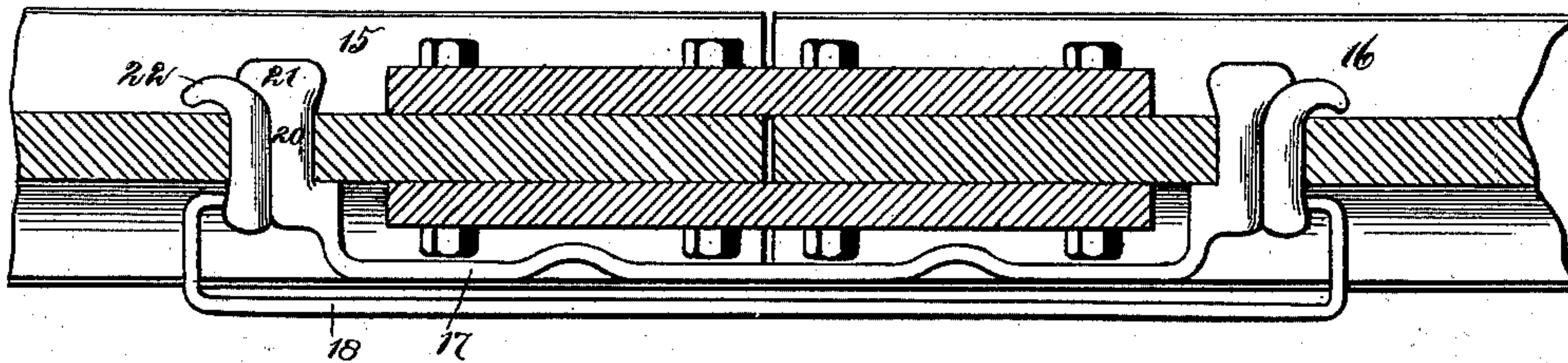


FIG 2

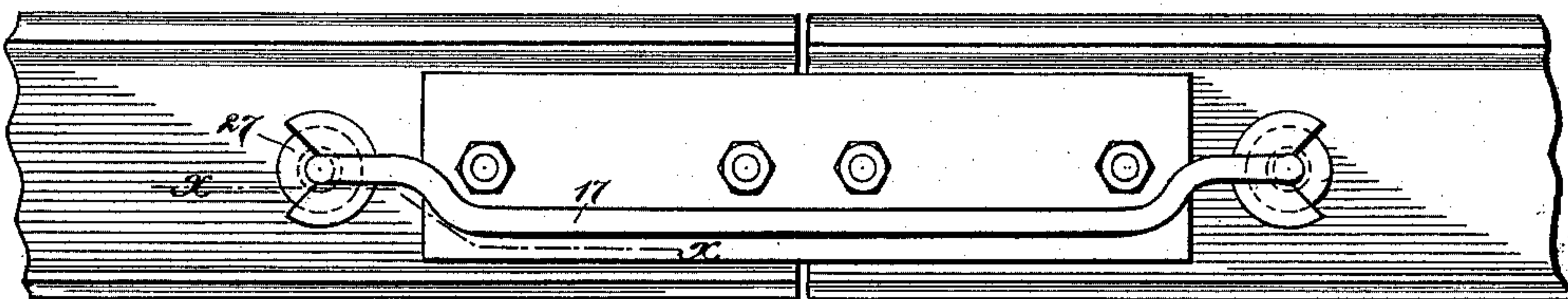


FIG 3

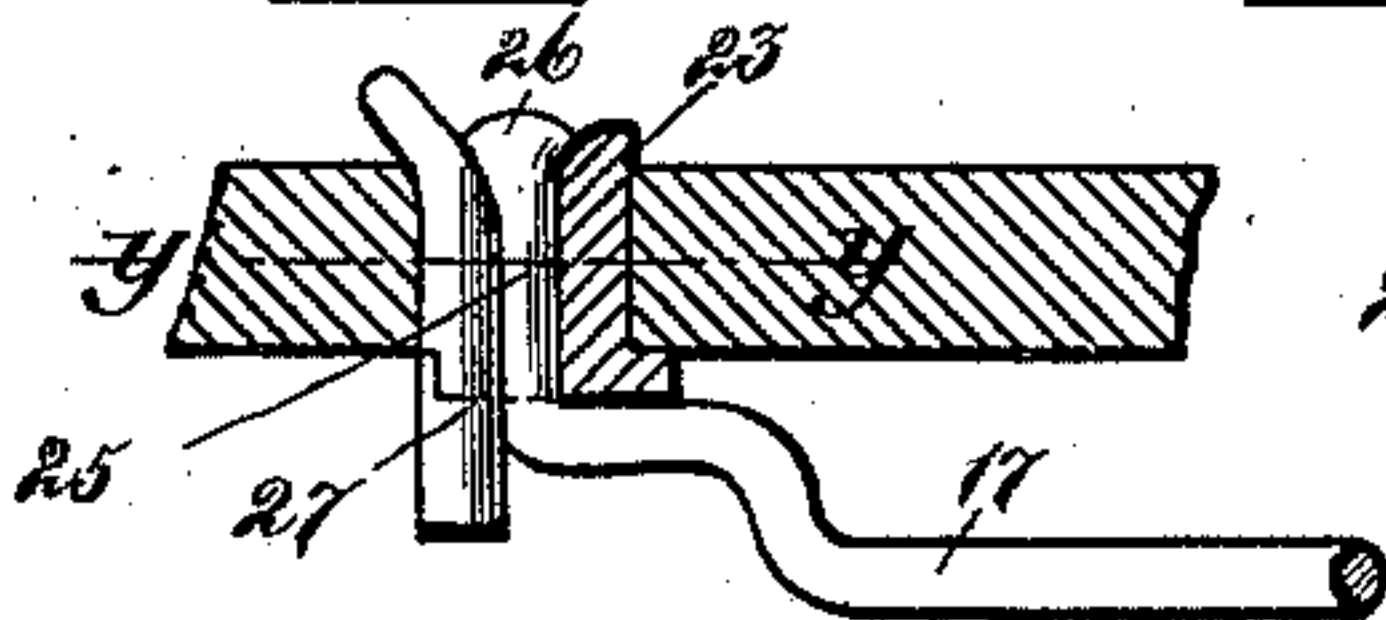


FIG 4



FIG. 5.

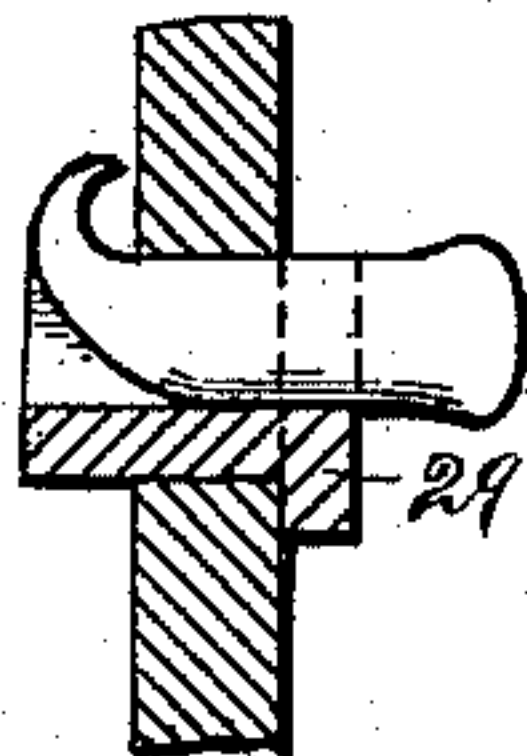


FIG. 6.

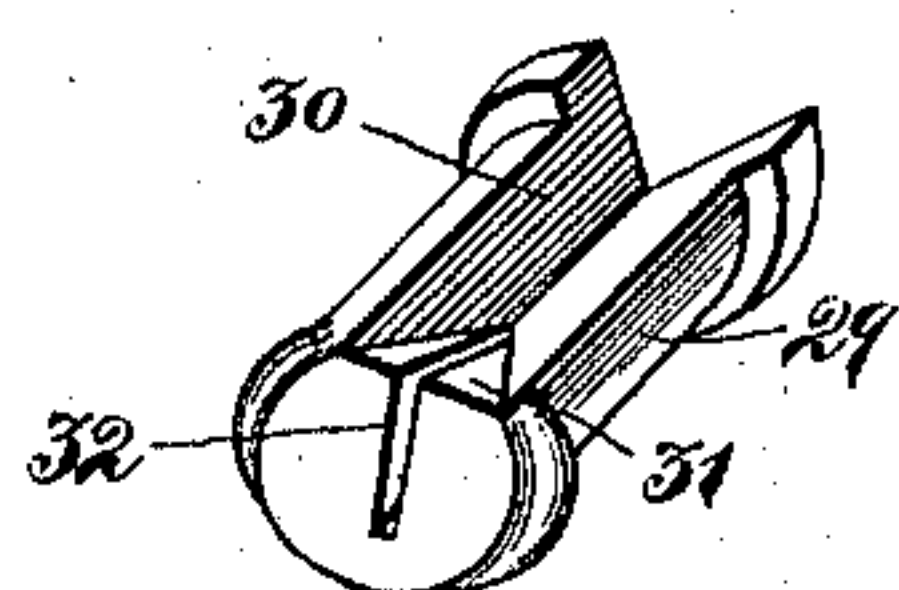


FIG. 7.



FIG. 8.

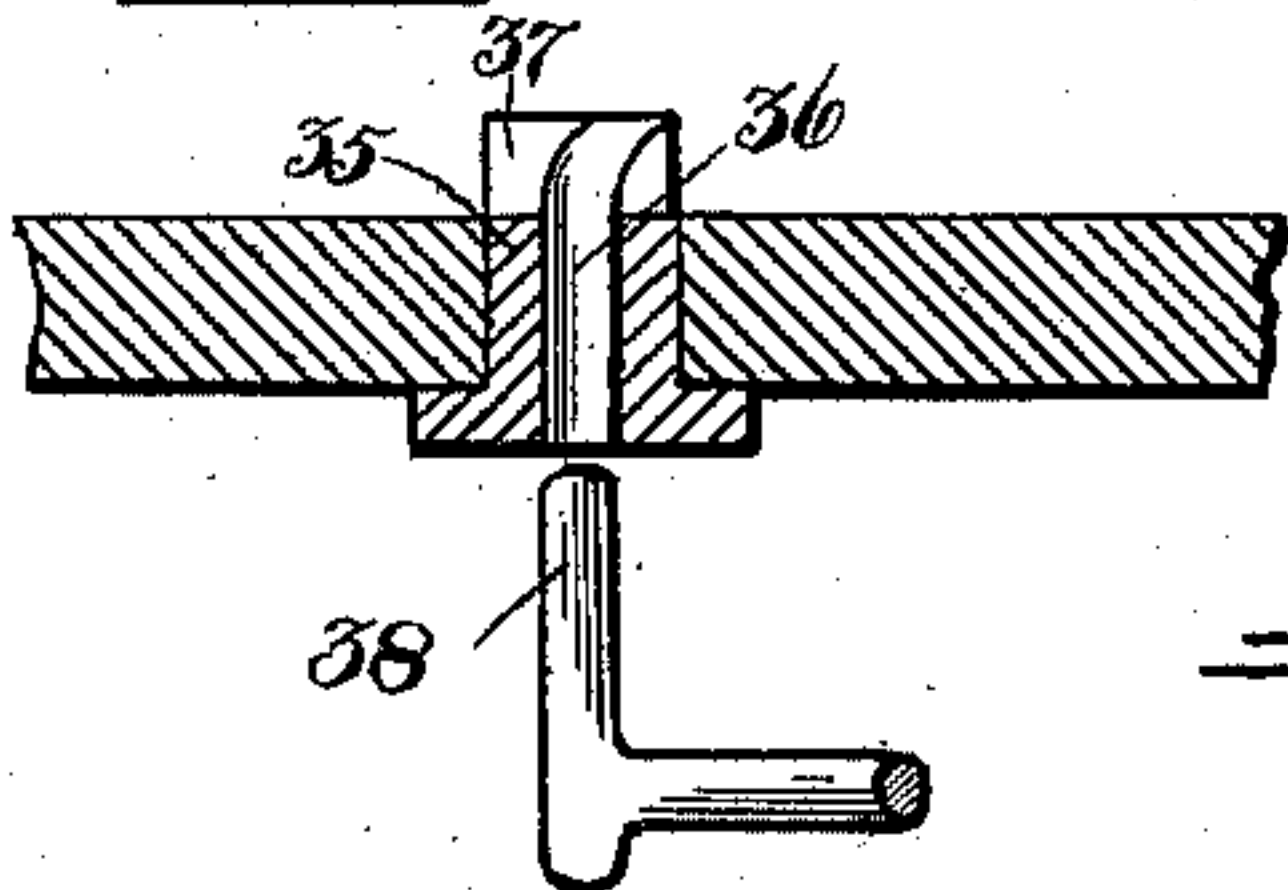


FIG. 9.

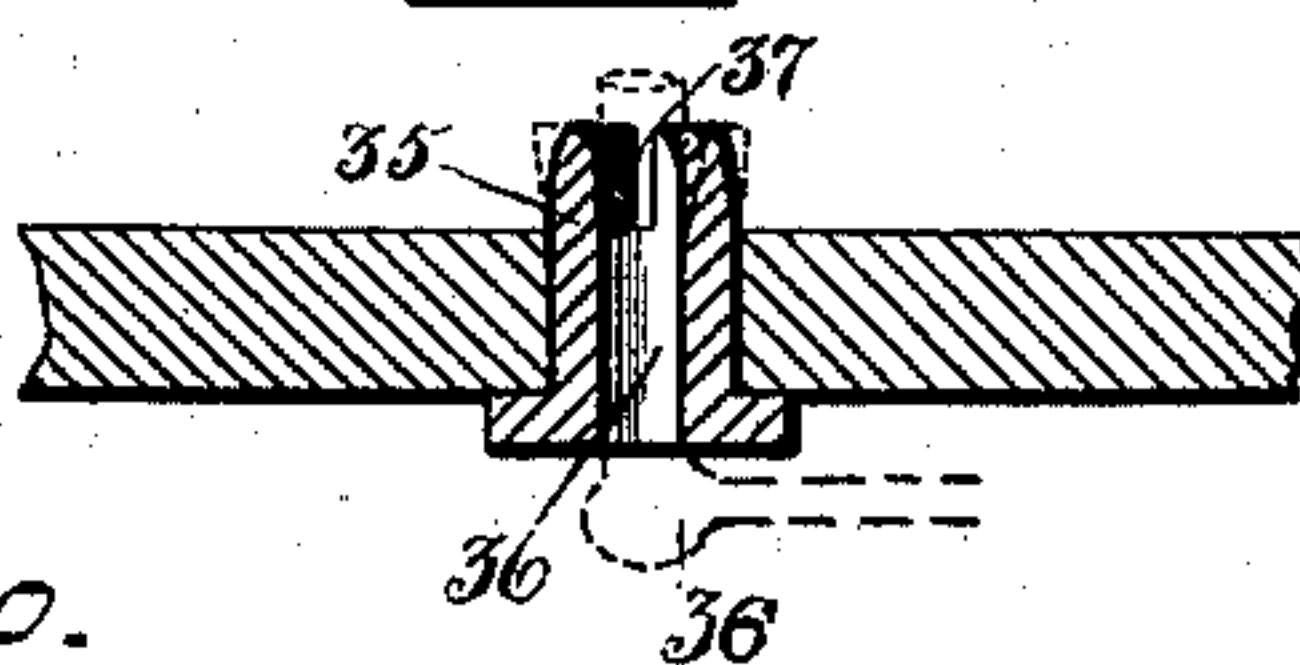
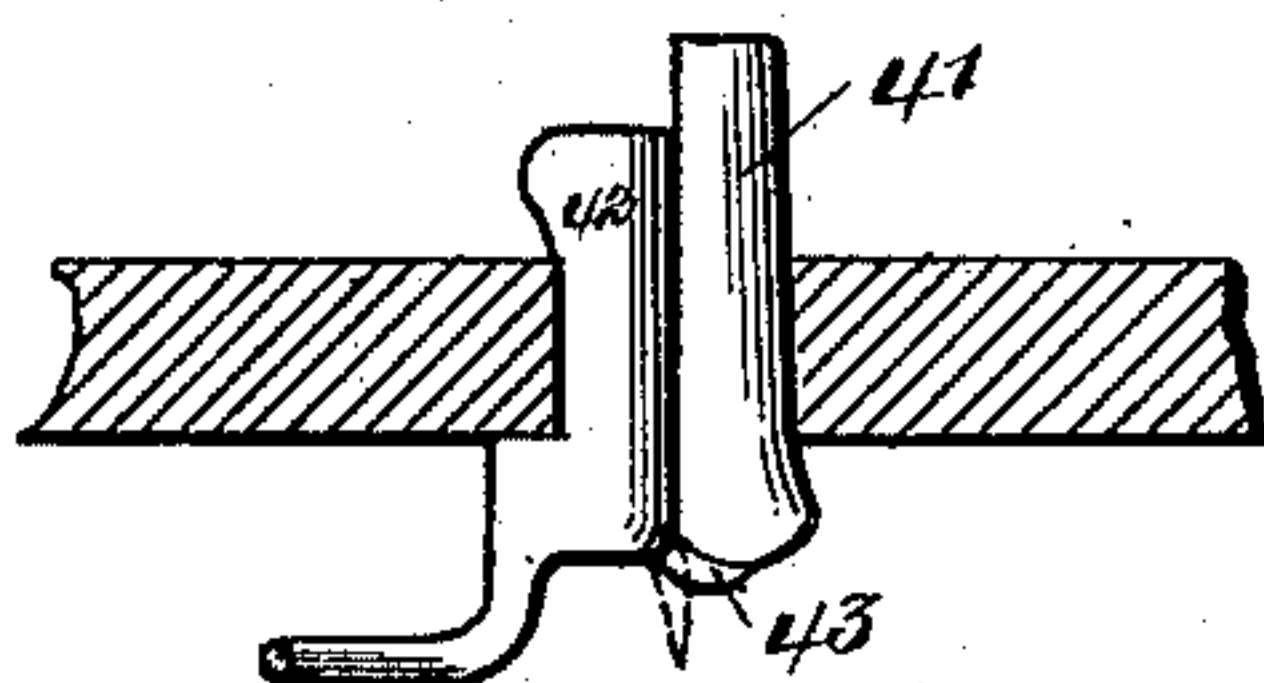


FIG. 10.



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# UNITED STATES PATENT OFFICE.

JAMES McLAUGHLIN, OF CHICAGO, ILLINOIS.

## BOND FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 567,841, dated September 15, 1896.

Application filed April 13, 1896. Serial No. 587,368. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES McLAUGHLIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improved Bond for Electric Railways, of which the following is a specification.

My invention relates to certain improvements in the means whereby the two meeting ends of the rails of an electric railway are "bonded" or electrically connected to provide a continuous conductor for the current.

My invention has for its object the provision of means whereby a complete and intimate electrical connection between the ends of the bond and the rails is obtained, which connection is maintained firmly in place, the device for accomplishing this purpose being simple and cheap in construction and capable of ready attachment.

My invention has certain other objects in view; and it consists in certain features about to be described, reference being now had to the accompanying drawings, in which—

Figure 1 is a longitudinal section through the meeting-end portions of the rails of a railway, showing the bond in position. Fig. 2 is a side view showing a modified form of a bond in position. Fig. 3 is a detailed cross-section of the connection of said bond on the line *xx* of Fig. 2. Fig. 4 is a cross-section on the line *yy* of Fig. 3. Fig. 5 is a vertical section of another modified form. Fig. 6 is a perspective view of same. Fig. 7 is a side view of the key. Figs. 8 and 9 are respectively vertical sections of still another form.

Referring to the form shown in Fig. 1, the meeting-end sections of rail are designated at 15 and 16 held together in the ordinary manner.

The conductors of the bond designated at 17 and 18 are respectively connected to the electrically-joining members which I will now describe.

I provide a bushing member 20, having a head 21 thereon, to which the conductor 17 is connected, one at each end thereof, adapted for insertion in an opening in the web of the rail, and also a spreading member or key 22, to which the other conductor, 18, is attached. This spreading member or key diminishes in

cross-section for its length to form a wedge. Having inserted the bushing member 20 into the rail-opening, the spreading member 22 is then inserted and driven inwardly, and its end impinging against the overhanging head 21 of the bushing member 20 is diverted from its direct inward course laterally and thus clenched to hold the spreading member or key 22 and bushing member 20 firmly, securely, and intimately in contact with the rail-section and provide a simple and readily-adjusted intimate electrical connection, the key or spreading member being self-clenching or self-locking as it is driven.

In Figs. 2, 3, and 4 I have shown another form, consisting of a bushing member 23, having a groove 24 therein, adapted to receive the securing member 25, which is an extension or prolongation of the conductor 17, and is provided with a head 26, a key 27 serving to wedge the connection tightly in position. The said key 27, when driven into position at its end, engaging against the head 26 of the securing member 25 and thereby diverting it laterally, clenches and holds the parts in position.

In Figs. 5, 6, and 7 I have shown another form, consisting of a bushing member 29, which is grooved at 30 and provided with an inclined member or portion 31, located in the line of the groove, this inclined member or portion being slotted at 32 to permit of the compression together of the bushing 30, whereby it may be inserted in the opening of the rail and then permitted to spring out or expand therein, the flanges 32 engaging beyond the web of the rail on that side thereof opposite to that on which the bushing is inserted. The key 33 is formed with a chamfered end 34, so that when inserted in the bushing and driven therein the pointed end thereof engages the inclined member 31, thus clenching the said key and locking the parts in position.

Figs. 8 and 9 illustrate still another form, in which I provide an annular thimble-bushing 35, having a perforation or channel 36 therethrough, which channel is curved for a portion of its length. The end portion of the thimble-bushing 35 is split or slotted at 37, whereby when the key 38, which is a prolongation of the conductor 17, is inserted and



driven into position it encounters the curved portion of the channel 36, and following said curved portion is clenched into a locking position, at the same time spreading the thimble 5 apart to wedge the same in position.

It is evident that the conductors or conductor may be secured to or formed with either the key or the bushing, or with both where two conductors are employed.

10 Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. A bond or connector for electric-railway rails consisting of a conductor or conductors, 15 a bushing and a self-locking key.

2. A bond or connector for electric-railway rails consisting of a conductor or conductors, an independent member and a key adapted to engage the independent member whereby 20 to lock said key.

3. A bond or connector for electric-railway rails consisting of a conductor or conductors, a removable bushing having a head thereon and a key which engages said head whereby 25 to lock said key.

4. A bond or connector for the rails of an electric railway, consisting of a bushing member which is longitudinally grooved, a securing member connected to or formed with the 30 conductor and positioned within the groove of the bushing member together with a self-locking key holding the parts in intimate connection and position.

5. A bond or connector for the rails of an 35 electric railway, consisting of a bushing member which is longitudinally grooved, a securing member positioned within the groove of the bushing member and having a head thereon, a conductor or conductors and a 40 key one end of which engages the head of the securing member to lock said key.

6. A bond or connector for the rails of an electric railway consisting of a bushing member having a groove therein, an inclined severed member or portion in the line of said 45 groove and a key the end of which is adapted to engage against the inclined member or por-

tion whereby to lock said key and expand the bushing member tightly in position.

7. A bond or connector for the rails of an 50 electric railway consisting of a bushing member having a groove therein, an inclined member or portion in the line of said groove and a key the end of which is adapted to engage against the inclined member or portion 55 whereby to lock said key.

8. A bond or connector for the rails of an electric railway consisting of a bushing member having a channel curved for a portion of its length adapted to admit the end portion, 60 of a conductor which when being secured in place encounters the curved portion of said channel and locks said end portion of the conductor in place.

9. A bond or connector for the rails of an 65 electric railway consisting of a bushing member having a channel or perforation extended therethrough which is curved for a portion of its length to admit the end portion of a conductor which when being driven into posi- 70 tion encounters the curved portion of the bushing to lock said end portion of the conductor in position said bushing being partially severed or slotted to permit expansion of the bushing within the rail and thereby se- 75 curely hold the bushing intimately and firmly in position.

10. A bond or connector for the rails of electric railways consisting of a conductor or conductors, a bushing member 42, a lug 43 ex- 80 tended from the bushing member and a key adapted to be secured in position by means of the securing-lug 43 on the bushing member 42 thereby to hold the parts in position, said lug 43 being upset or overturned upon 85 the key to lock the same by the impact of the implement driving the said key as set forth.

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

JAMES McLAUGHLIN.

Witnesses:

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L. M. BULKLEY.