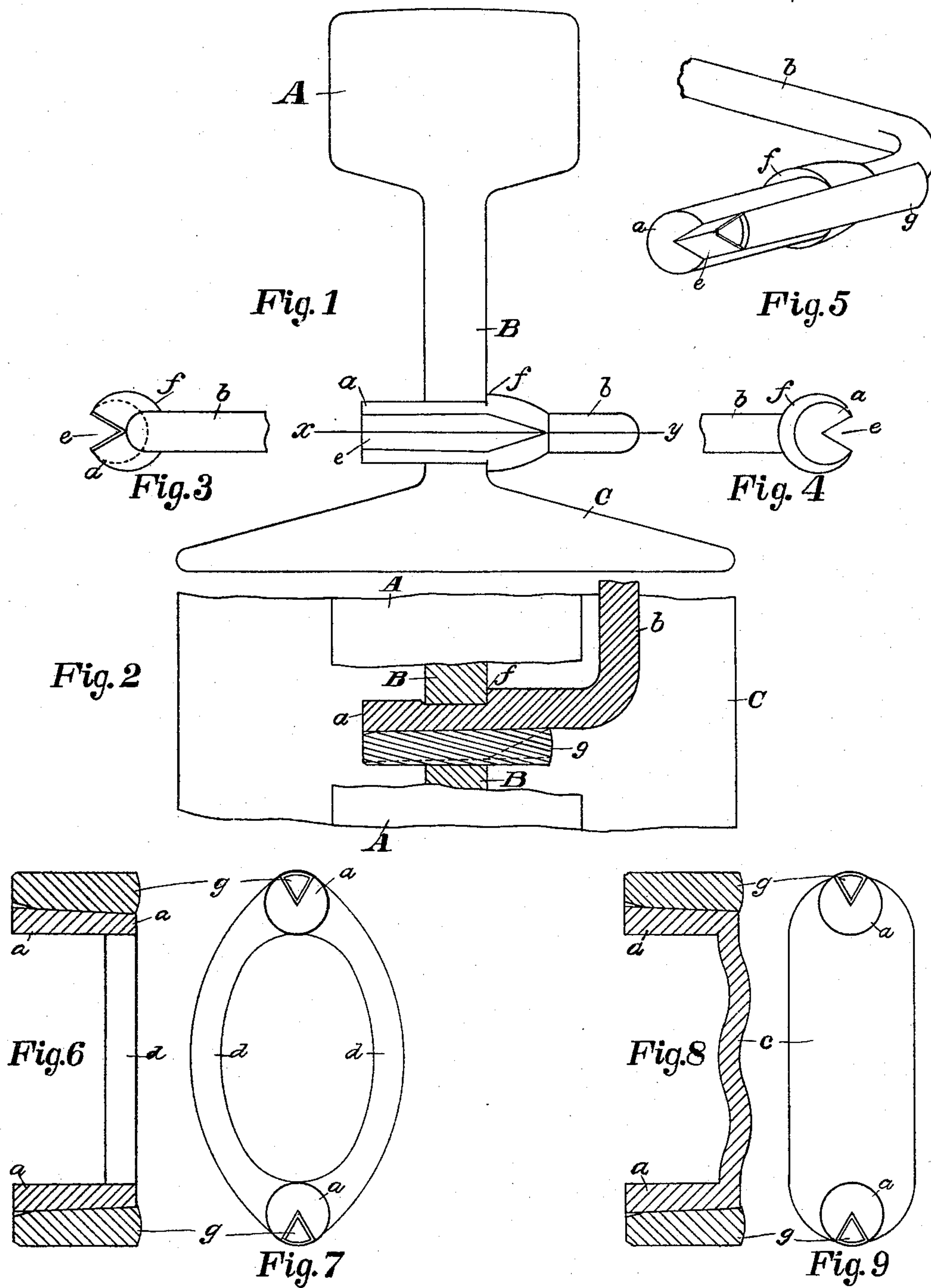


(No Model.)

I. B. WALKER & L. G. NILSON.  
RAIL BOND.

No. 572,668.

Patented Dec. 8, 1896.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 572,668, dated December 8, 1896.

Application filed September 9, 1896. Serial No. 605,279. (No model.)

*To all whom it may concern:*

Be it known that we, IRVIN B. WALKER and LARS G. NILSON, citizens of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented certain new and useful Improvements in Rail Bonds or Connectors for Electrical Conductors, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates particularly to an improved form of terminal contact or connecting lug and fastening device for rail-bonds.

The objects of our improvements are, first, to produce a simple, cheap, and durable contact and fastening device that can be applied either to the ordinary long bond, usually made up from a wire, rod, bar, or strip of copper, or to the class of short bonds placed between the fish-plates and web of the rail; second, to provide a contact-lug with fastening device so arranged that the work of fastening the same (after the proper hole has been drilled) can be done entirely from one side of the rail which is to be connected. This is a great advantage, as in some cases it would require extra labor to get at both sides. These results we attain by constructing the rail-bond with a terminal or contact lug the cross-section of which is circular, with a V or sector shaped portion cut out. Into this cut-out portion a V or sector shaped tapered wedge or key is driven, thus making a perfect electrical and mechanical connection, as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 represents the cross-section of a rail, showing a bond in position without the sector-shaped wedge. Fig. 2 is a plan view with a partial section through line *x y*, Fig. 1, showing the wedge driven home. Fig. 3 shows the bond-terminal as it appears from the side of the rail from which the wedge is driven. Fig. 4 is a view from the opposite direction. Fig. 5 is a perspective view of the bond-terminal lug and wedge. Fig. 6 is a longitudinal section, and Fig. 7 is a plan view, of our short double

bond. Fig. 8 is a longitudinal section, and Fig. 9 is a plan view, of another form of short bond.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings in detail, *b* represents the main portion of the bond-wire.

*a* is a terminal lug which is inserted into holes made for that purpose in the rails, and *f* a shoulder or eccentric enlargement situated between the lug *a* and wire *b*.

It will be noticed that the lug *a*, shoulder *f*, and adjoining portion of wire *b* are slightly eccentric in relation to each other. This is for the purpose of allowing the sector-shaped slot *e* to be cut through lug *a* and shoulder *f* without disturbing or reducing the main part of the bond *b*. After lug *a* has been inserted in the proper hole in the rail the tapered wedge *g* is driven into the slot *e*, exerting such a pressure on the metal of the lug as to swell it in every direction, thus completely filling the hole, and at the same time causing part of the metal to be forced out of the hole on the opposite side and expanding the lug on that side of the rail, as is clearly shown in Fig. 2. The shoulder *f* also prevents the bond from "creeping" when the wedge *g* is driven home.

Figs. 6 and 7 show our improved form of short bond. *a a* are the terminal lugs, *g g* the wedges, and *d d* the connecting portion. We prefer to make these conducting parts *d d* curved and double, for the reasons, first, to allow for the motion due to the expansion and contraction of the rails; second, to make it possible to apply two or more bonds to the same rail-joint. This we accomplish by drilling two or more holes near the ends of the rails and "lapping" the bonds, so that one lug of each bond will be located between the two lugs of the other.

Figs. 8 and 9 show how our invention may be applied to one of the common forms of short bonds.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A rail bond or connection for electrical conductors consisting of a wire, rod, bar or

strip of metal having terminal lugs, with a V or sector shaped portion cut away, substantially as described.

2. A rail bond or connector for electrical  
5 conductors, consisting of a wire, rod, bar or strip of metal having terminal lugs adapted to be inserted in holes in the rails with an eccentrically-enlarged portion *f* on each of said lugs, substantially as shown and for the purposes specified.

10 3. A rail bond or connector for electrical conductors, consisting of a main portion *b*, eccentric enlargement *f*, terminal lugs *a a*, a

tapered slot *e* extending through said lugs, and a tapered wedge *g* adapted to be driven into said slot *e*, substantially as described and for the purposes set forth.

In witness whereof we have hereunto subscribed our names in the presence of two witnesses.

IRVIN B. WALKER.  
LARS G. NILSON.

Witnesses:

H. C. GARDINER,  
F. W. LOHR.