No. 620,865. Patented Mar. 7, 1899.

# H. L. DES ANGES.

## RAILWAY RAIL BOND.

(Application filed June 18, 1895.)

(No Model.)

Fig 1

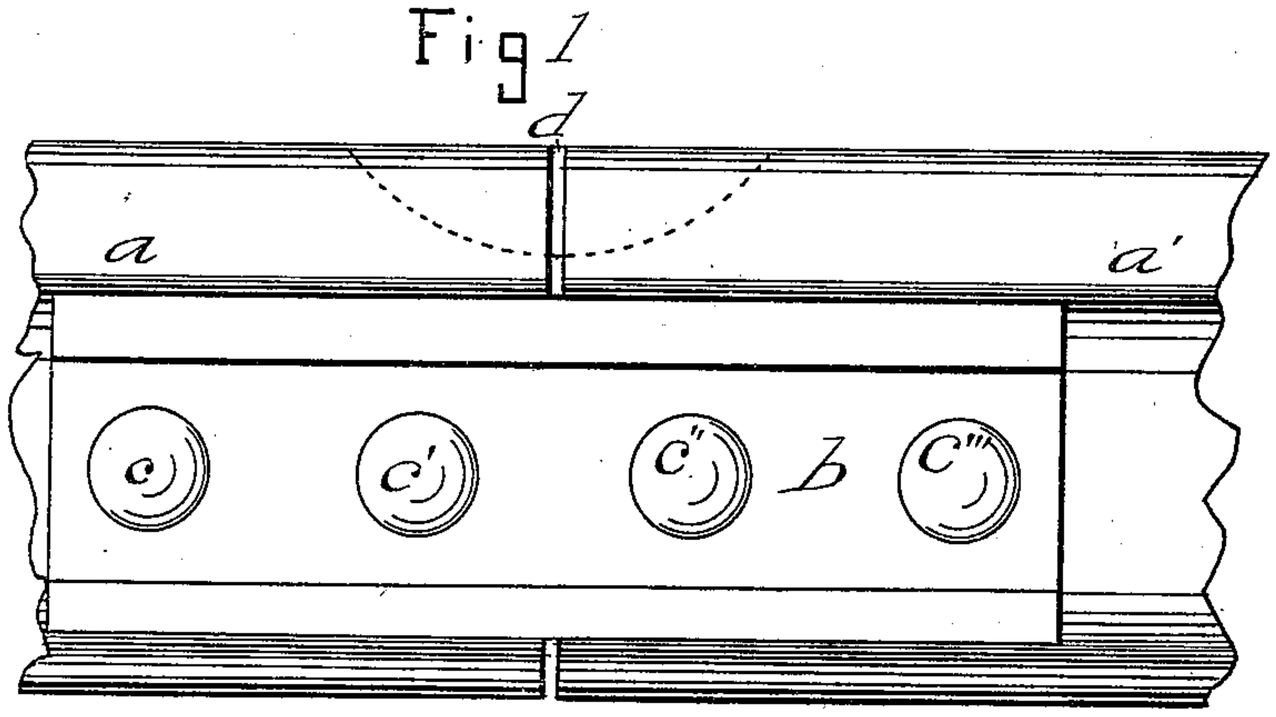



Fig 2

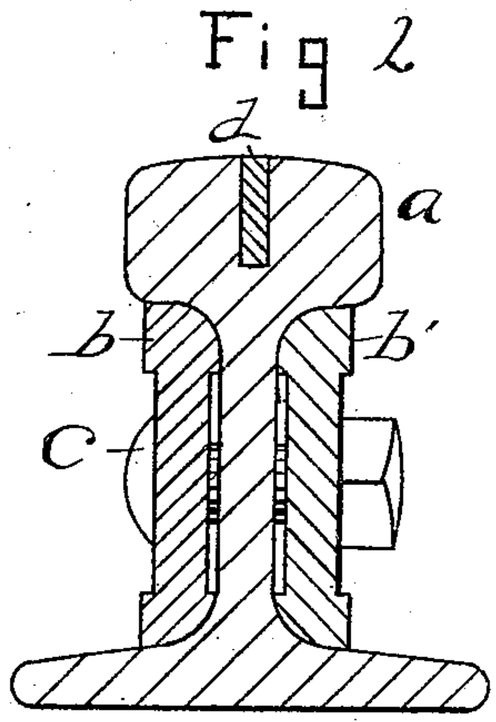



Fig 3

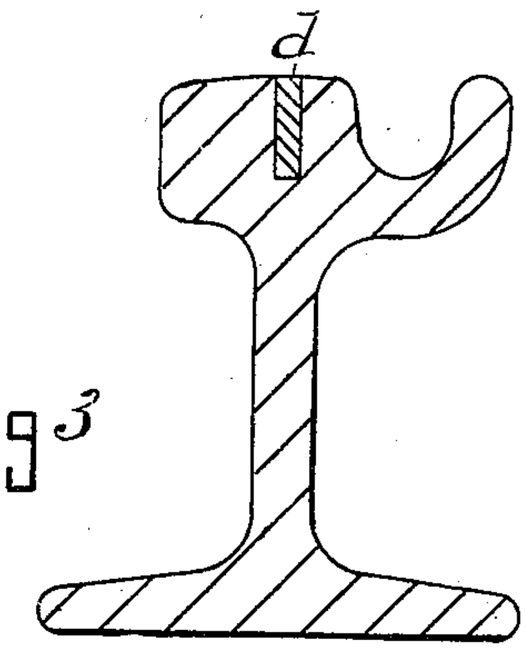
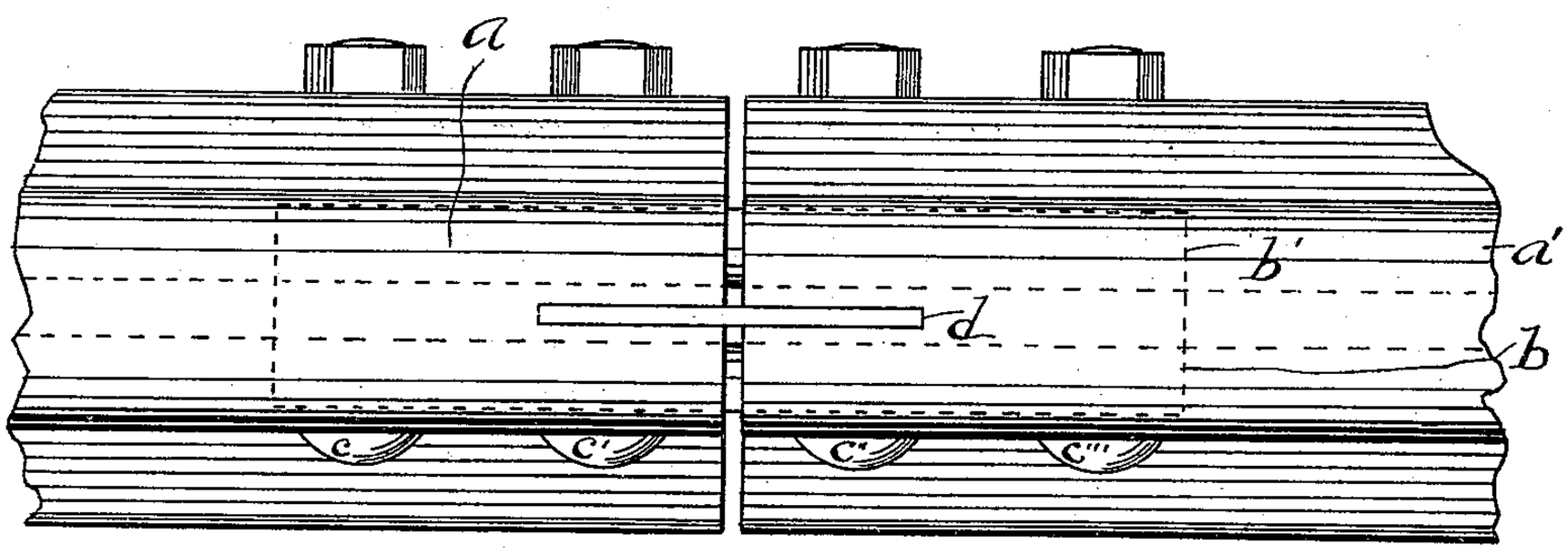



Fig 4

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HENRY L. DES ANGES, OF HOBOKEN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO GEORGE W. COLLES, OF BOSTON, MASSACHUSETTS.

## RAILWAY-RAIL BOND.

SPECIFICATION forming part of Letters Patent No. 620,865, dated March 7, 1899.

Application filed June 18, 1895. Serial No. 553,226. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY LOUIS DES ANGES, a citizen of the United States, residing at Hoboken, in the county of Hudson, State of New Jersey, have invented a new and useful Improvement in Railway-Rail Bonds, of which the following is a specification.

The object of the invention is that it may have the advantage over ordinary types of rail-bonds—first, in dispensing with wires and rivets and the difficulty involved in keeping these permanently in good electrical connection with the rail, and, secondly, to shorten the path of the current and to lower the electrical resistance from rail to rail, which is by my method made so low as to render it possible to avoid using metals, such as copper, of high conductivity, and thus to diminish the cost. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the rails at a joint, showing one form of my rail-bond. Fig. 2 is an end elevation of a rail containing the form of rail-bond shown in Fig. 1, with bond and fish-plates shown in section. At Fig. 3 is shown another form of rail with the same bond. Fig. 4 is a plan of that which is shown in Fig. 1.

*a a'* are portions of two abutting rails in a track joined together by the fish-plates *b b'*. *c c' c'' c'''* are the bolts holding the fish-plates against the rails.

*d* in Figs. 1, 2, and 4 is the rail-bond electrically connecting the two rails and consisting of a strip of metal driven into a close-fitting recess in the rails formed to receive it. Thus the bond will make good metallic connection with the rails *a a'*, and the current will pass freely between these rails.

The form of rail-bond shown in Figs. 1, 2, and 3 has the advantage that every passage of car-wheels over the rails will tend to press the bond downward and compress the metal, so as to fill any crevices which might form between it and the rail.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a railway, the combination of rails, having grooves in the tops of the treads thereof, and a bond, for electrically connecting the rails, fitting tightly within said grooves.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY L. DES ANGES.

Witnesses:
GEORGE W. COLLES, Jr.,
JOHN F. O'HARA.