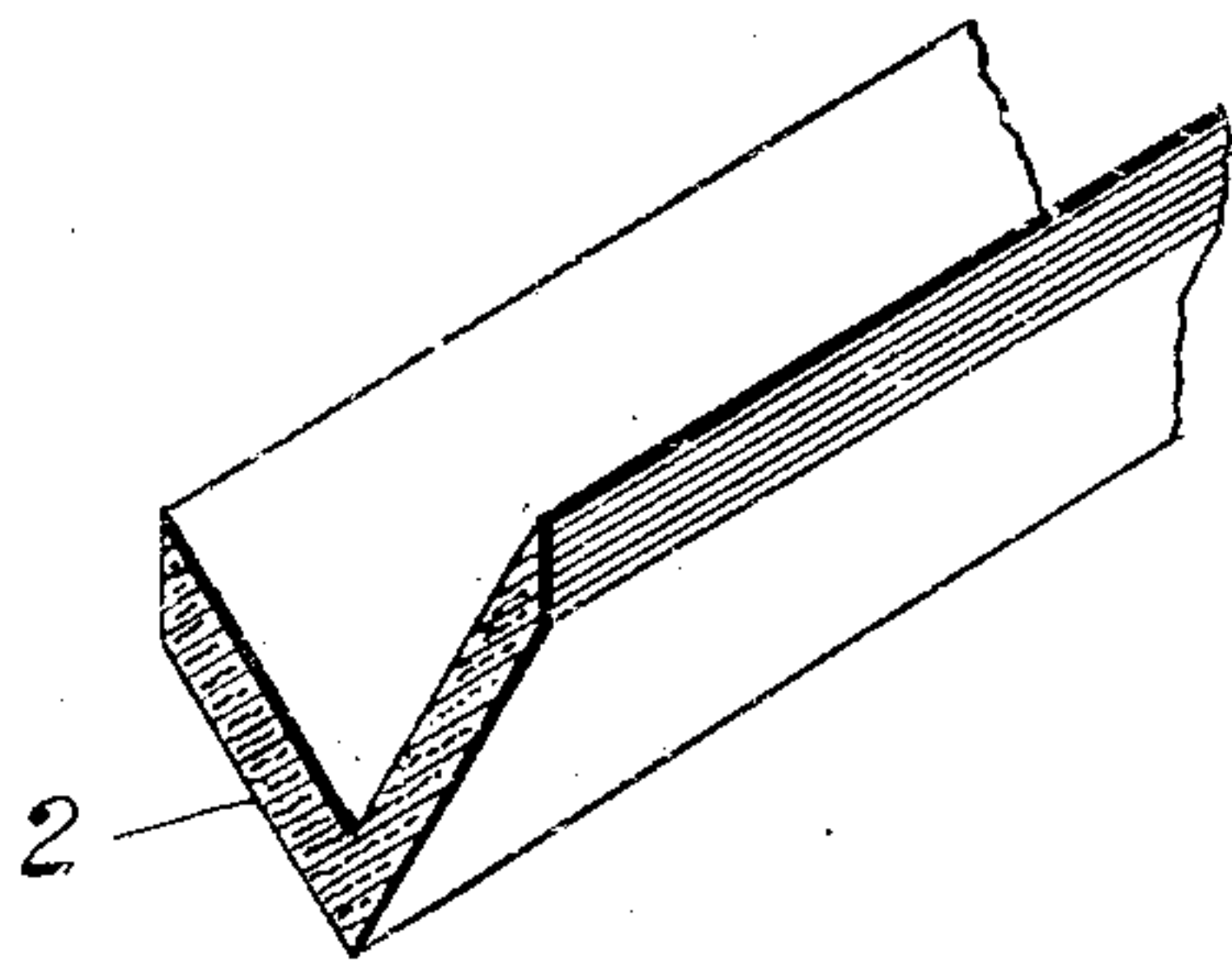
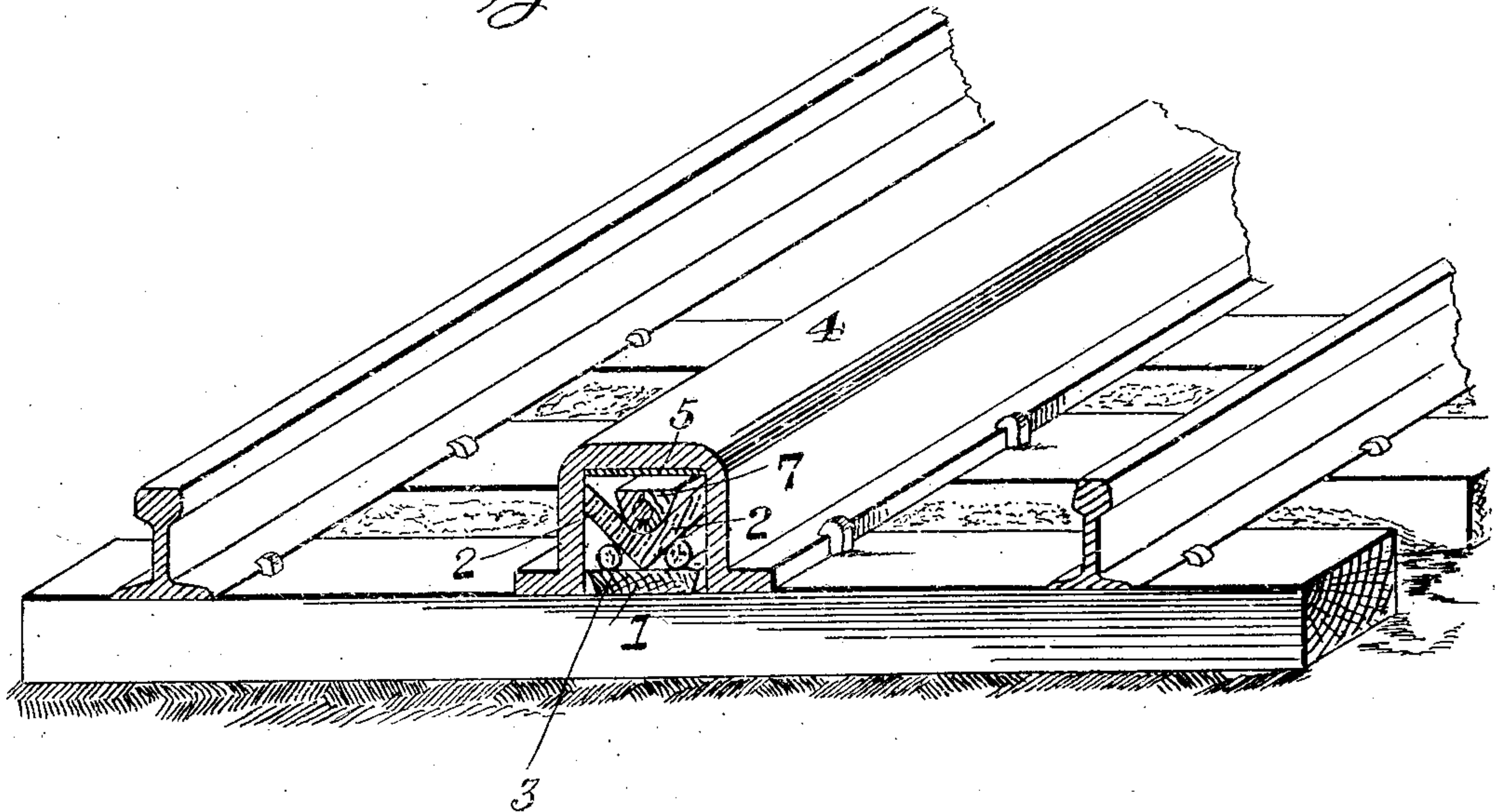


H. C. BROWN & B. A. HARRIS.  
ELECTRIC RAILWAY.  
APPLICATION FILED NOV. 19, 1906.

955,753.

Patented Apr. 19, 1910.  
2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2*

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APPLICATION FILED NOV. 19, 1906.

2 SHEETS—SHEET 2.

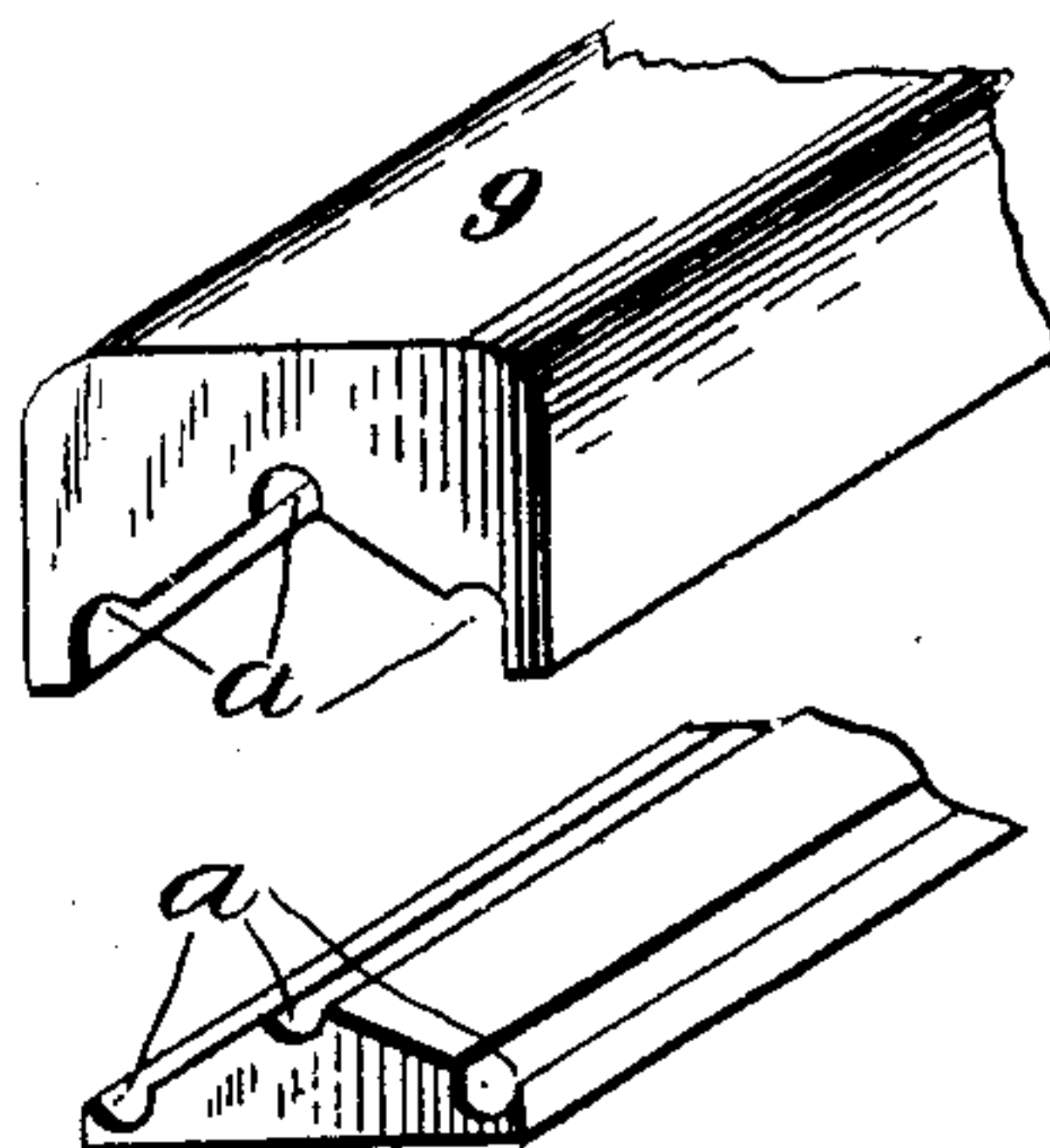


Fig. 4

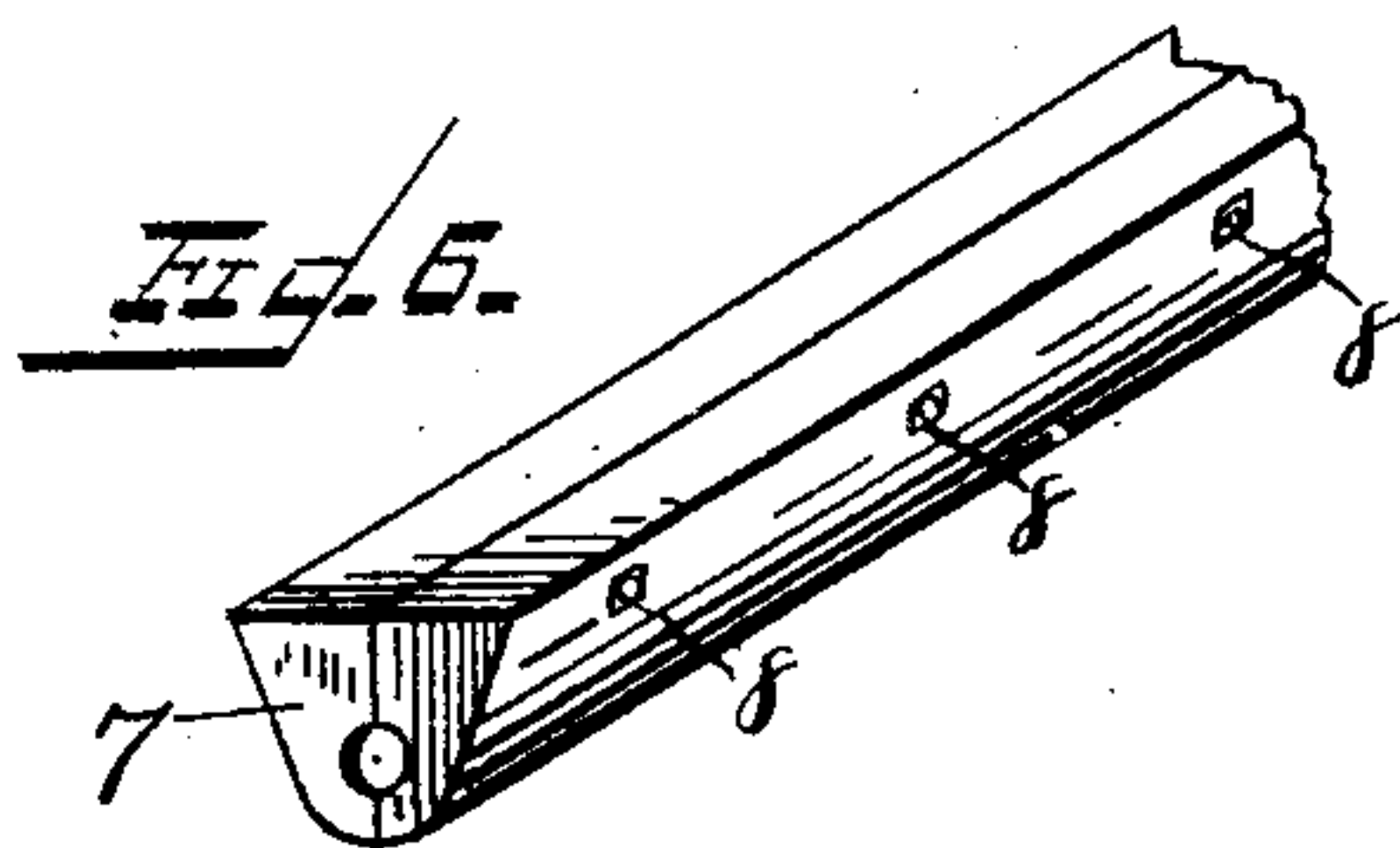
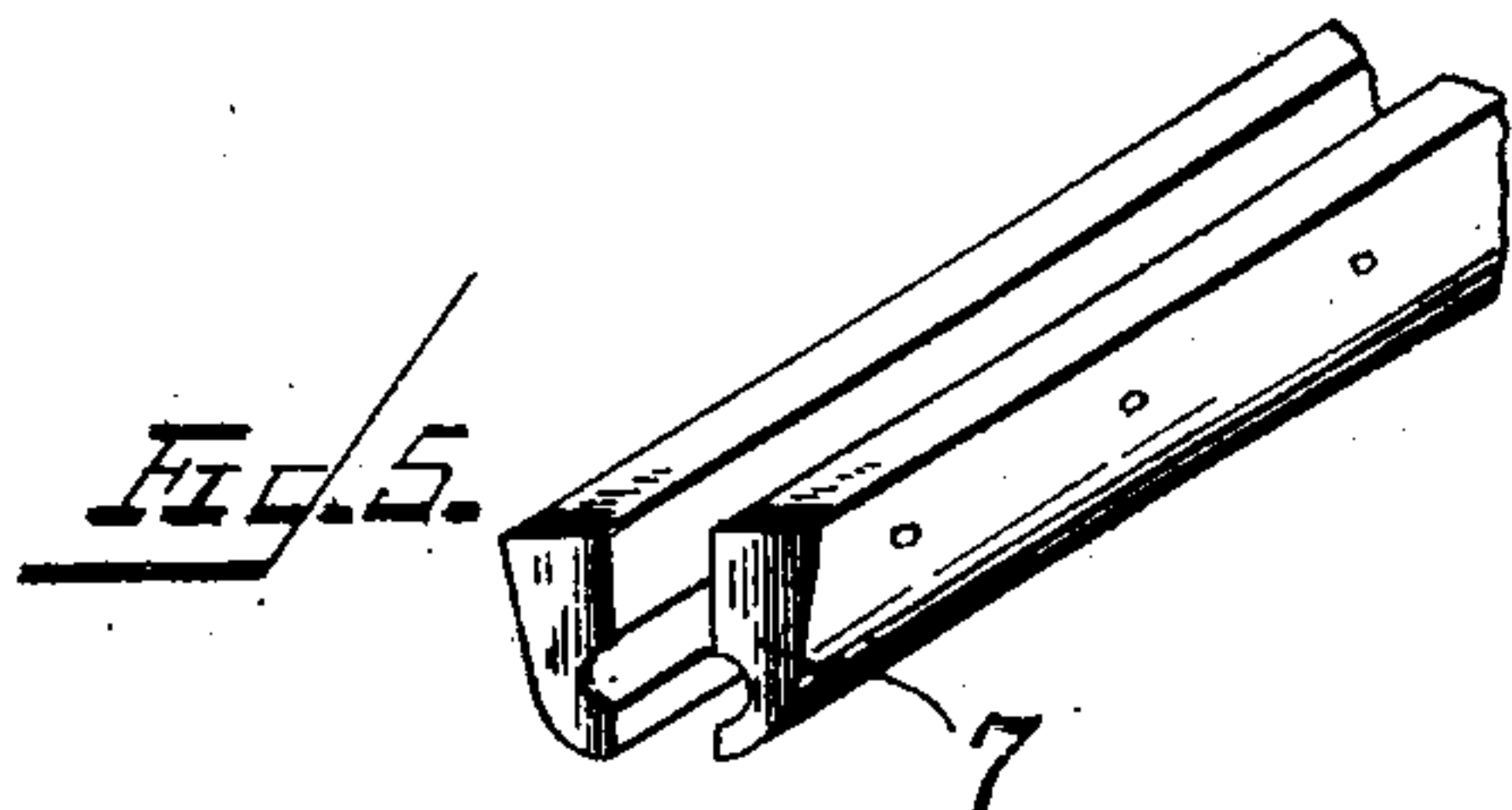
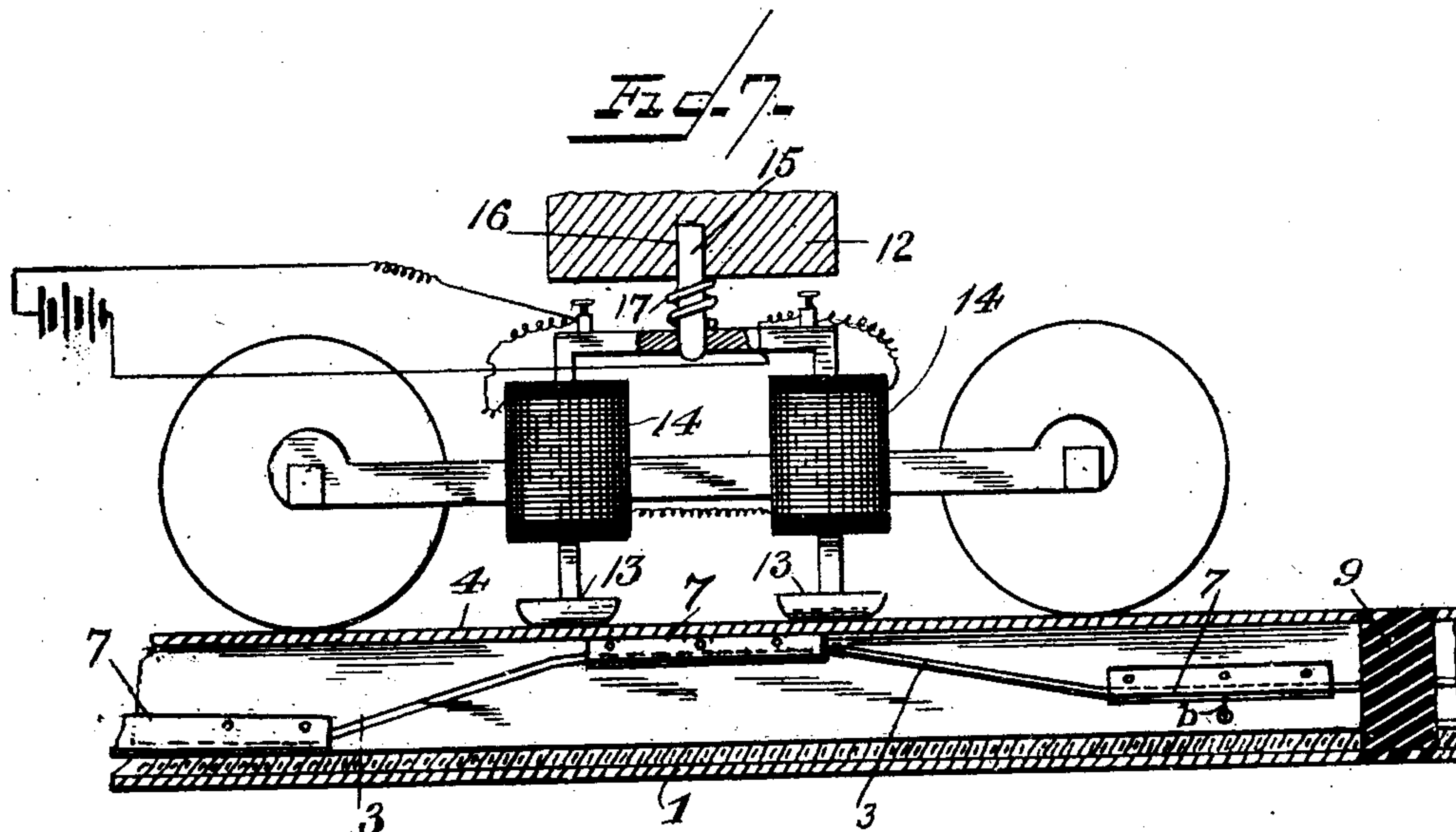



Fig. 6.



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# UNITED STATES PATENT OFFICE.

HARRY C. BROWN AND BERT A. HARRIS, OF BLOOMINGTON, ILLINOIS.

ELECTRIC RAILWAY.

955,753.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed November 19, 1906. Serial No. 344,150.

*To all whom it may concern:*

Be it known that we, HARRY C. BROWN and BERT A. HARRIS, citizens of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

Our invention relates to improvements in electrical railway systems, more especially of the third-rail type. Its object is to provide for running cars at any rate of speed without liability of loosing the connection or breaking the current-contact, and without the use of overhead wires of any kind; and also to practically guard absolutely against the escape of the electrical current in any manner; also to carry out the foregoing objects in a simple and economic manner, the putting into practice of the same being effected at the very minimum expense.

Said invention consists of certain features or instrumentalities substantially as hereinafter fully disclosed and specifically pointed out by the claims.

In the accompanying drawing illustrating the preferred embodiment of our invention—Figure 1 is a perspective view embracing said invention, with parts broken away. Fig. 2 is a broken perspective view of a tile member arranged in the hollow rail. Fig. 3 is also a cross-section of what may be termed a plug which is formed in sections or members, for service at the rail-section joints. Fig. 4 shows the plug-members or sections disassembled. Fig. 5 shows disassembled views of the members or sections of what may be styled a lug with a series of which the trolley-wire is equipped. Fig. 6 is an assembled view of the same in perspective. Fig. 7 is a sectional elevation showing more particularly the car truck and rail-section, also secondary battery therefor.

In the disclosure of our invention we arrange in proper position in the trackway, upon suitable ties, a hollow rail 4, of iron or other suitable material, preferably of inverted U-form composed of sections placed end for end and suitably insulated from each other. Within said hollow rail at the bottom, we place a strip 1 of wood or other suitable non-conducting material, the latter constituting the bottom of the conduit thus formed. Upon said strip or base, we place tiles 2 of preferably vitreous material, and of V-form flaring upward, to form a bed

or holder for the trolley wire 3, said trolley wire being of usual electrical conducting material, and having suitably applied or attached thereto at suitable intervals apart wrought iron lugs 7 preferably triangular in cross-section, with their bases presented upward, each being preferably formed in two sections or members, and each section or member being recessed at its vanishing longitudinal edge to permit its application to said wire to which it is clamped. Screwbolts 8 are inserted through opposite or registering apertures in the downwardly tapering terminals of the two sections or members of each lug for holding together said sections or members and consequently securing or clamping the lug upon said wire or trolley. Said lugs 7 are adapted to make suitable electrical contact with a copper strip 5 secured to the underside of the hollow rail 4 by the energy or action of the electric magnet, when applied as presently explained.

The separate sections or lengths of the hollow rail 4 have interposed between them and are joined together end for end by suitable insulating plugs 9 composed of some insulating material, and so formed as to exactly fill the interior of said hollow rail 4 for a short distance on each side of the joint, and also to exactly fill the space between the ends of the adjoining sections, thus insuring perfect insulation between said sections at those points. These rail sections are of such length that at no time will a rail section extend beyond the end of a car or cars while charged. The charged rail is always under the car. It will therefore be seen that the vitreous tiles are discontinued at the rail joints, being substituted at those points by said insulating plugs. Said insulating plugs are suitably divided longitudinally into sections, and said sections have formed in their meeting surfaces passages  $\alpha$  through which the trolley wire may extend.

Between the vitreous tile sections 2 and the inner sides of the hollow rail 4 are spaces which are utilized as conduits for the feed or other wires in connection with the operating of the electric railway, said insulating plugs 9 between the rail-sections being also adapted to form passages for such feed or other wires in the same manner as they form passages for the trolley wire.

Suitably arranged or hung upon the un-



derside of the car-truck 12 and so as to permit the shoe-equipped ends 13 of the cores thereof to engage or contact with the rail is an electro-magnet, 14, having centrally  
 5 extending upward therefrom a stem or king-bolt 15 suitably swiveled in position in the car-truck at 16 to allow the magnet to readily accommodate itself to the rail-curva-  
 10 tures and which magnet may be substituted by a permanent magnet when required. Said stem or king-bolt 15 is encompassed by a spring 17 to hold the shoes of the magnet in effective engagement with the rails and  
 15 to allow the same to accommodate themselves to unevenness in the rail and thus readily ride or pass thereover. A supply wire 6 connects the feed and trolley-wires.

It is apparent that, with the magnet duly charged from the source of electrical energy,  
 20 the trolley-wire, with its lugs, will be duly attracted toward the third-rail and said lugs have contact with the latter and the current passing therethrough thus be utilized to drive the car or cars.

25 We claim—

1. In an electric railway, a third rail comprising a tiling in the form of a conduit, a trolley wire held therein, a contact plate arranged above said tiling, and an upwardly  
 30 flared lug formed in longitudinal sections adapted to embrace and be secured to said trolley wire.

2. In an electric railway, a third rail comprising a tiling in the form of a conduit, a  
 35 trolley wire held therein, a contact plate arranged above said tiling, and an upwardly flared lug formed in longitudinal sections effective at the vanishing edges to receive the said trolley wire, and means securing  
 40 the same upon the said trolley wire.

3. In an electrical railway, a third-rail comprising a tiling or conduit of V-form

outline a trolley-wire therein, feed-wires, a non-conducting base for said tiling or conduit and a hollow-rail forming a housing  
 45 for said tiling or conduit and base, said housing also forming with said tiling lateral passages for the reception of the feed-wires.

4. In an electrical railway, a third-rail comprising a conduit or tiling, and a trolley-  
 50 wire arranged in said conduit or tiling and equipped with an upward flared lug formed in longitudinal sections adapted to embrace and be secured to said trolley-wire.

5. In an electrical railway, a third-rail  
 55 comprising a conduit or tiling, and a trolley-wire arranged in said conduit or tiling, and provided with a lug having an upward flared portion and formed in longitudinal sections effective at their vanishing longi-  
 60 tudinal edges to receive said trolley-wire, and means for securing the same upon said trolley-wire.

6. In an electric railway, a third rail composed of a hollow U-shaped rail, a tiling  
 65 located in the hollow rail, a trolley-wire in the tiling, feed wires outside of the tiling and housed within the hollow rail.

7. In an electric railway, a sectional third rail composed of a hollow U-shaped rail, a  
 70 tiling located in the hollow rail, a trolley-wire in the tiling, feed wires outside of the tiling and housed within the hollow rail, lugs made in sections bolted solidly upon the wires and insulating plugs made in sec-  
 75 tions located at the joints of the rails, said plugs having recesses for the feed wires.

In testimony whereof we affix our signatures, in presence of two witnesses.

HARRY C. BROWN.

BERT A. HARRIS.

Witnesses:

B. FRICKLOHNER,

E. A. WELCH.