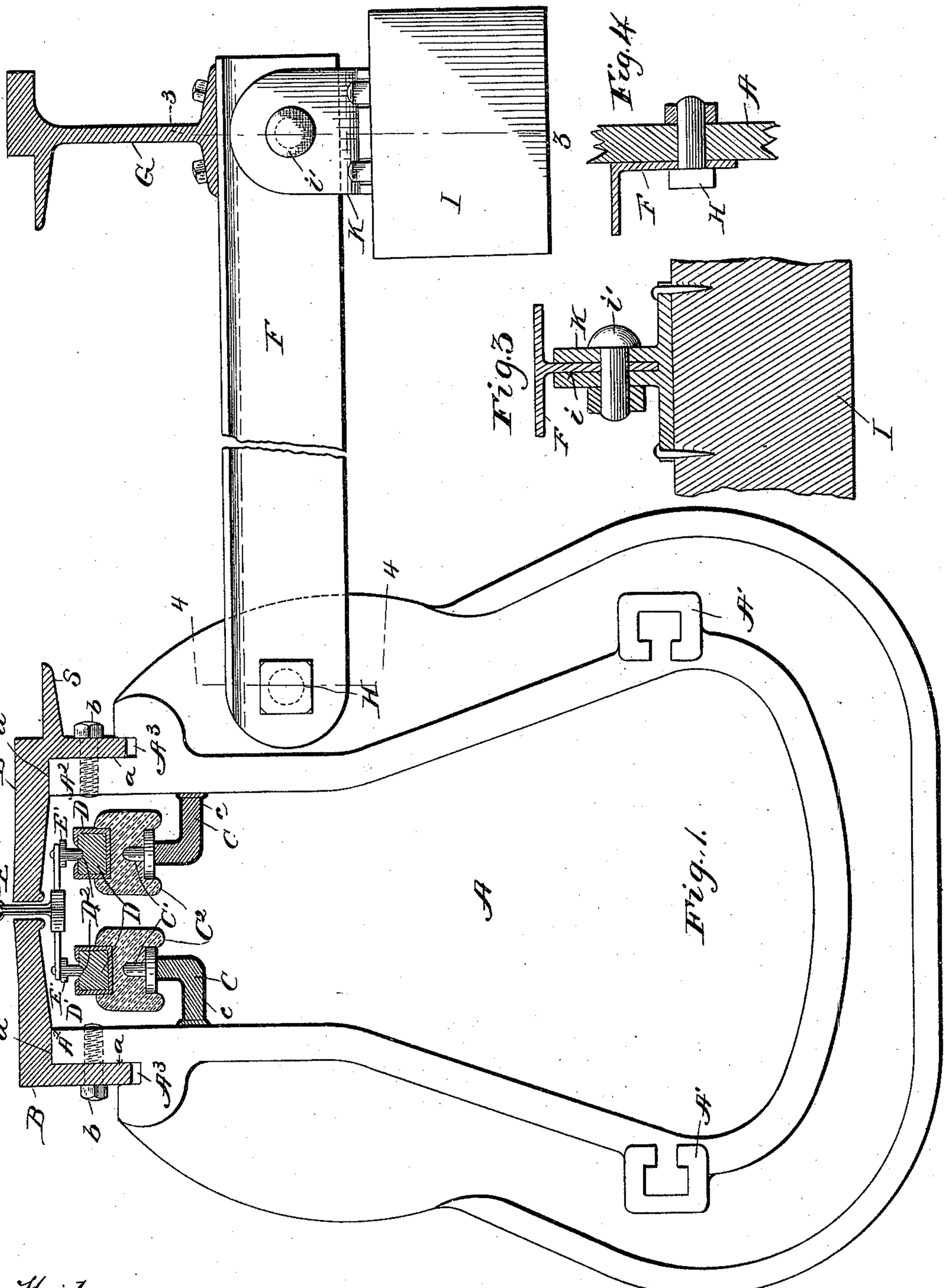
(No Model.) 2 Sheets—Sheet 1.

H. BRANDENBURG.

ELECTRIC RAILWAY.

No. 561,307. Patented June 2, 1896.



Witnesses
W. Rees Edelen
Geo. Lowe

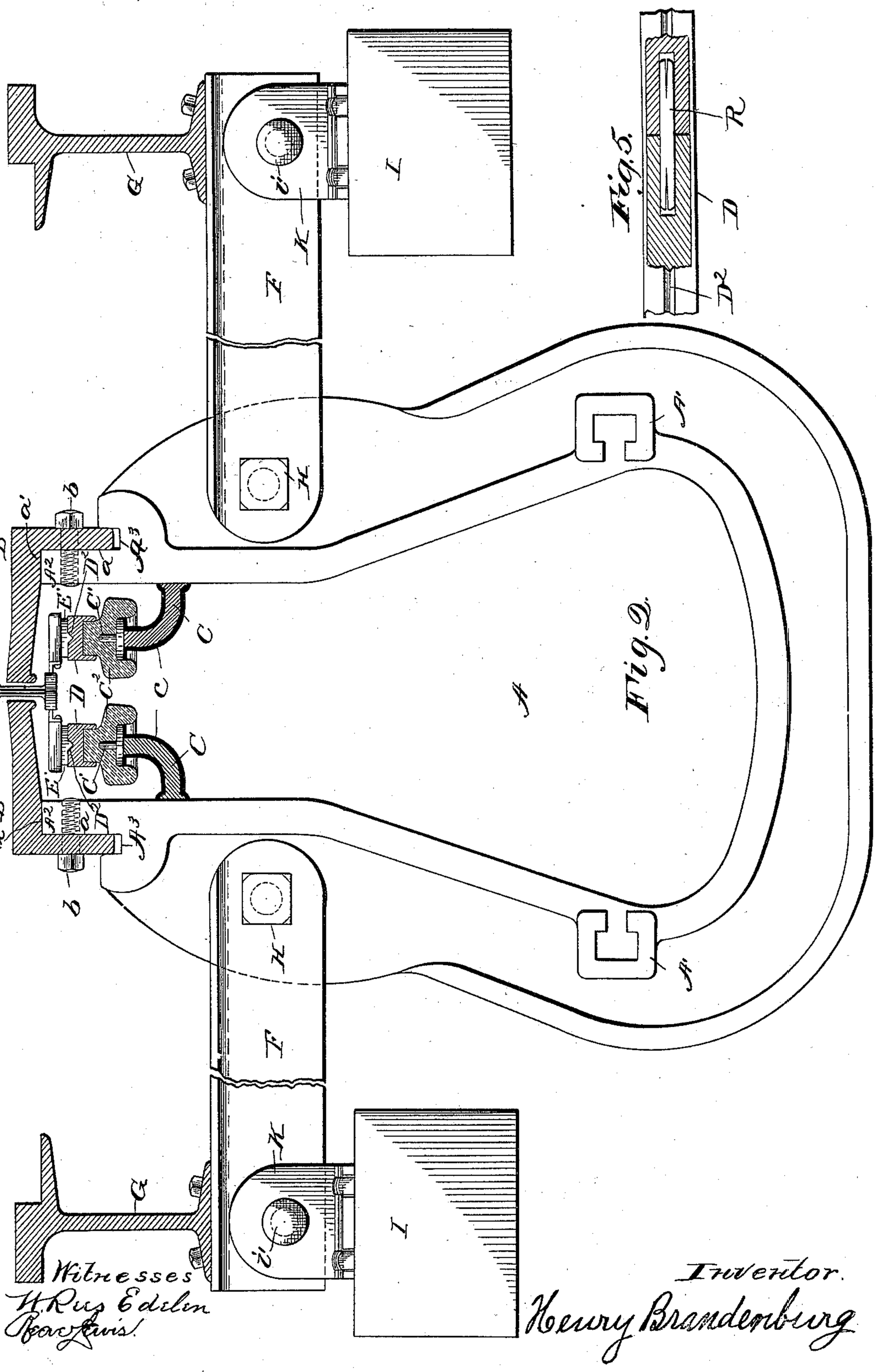
Inventor.
Henry Brandenburg

(No Model.) 2 Sheets—Sheet 2.

H. BRANDENBURG.

ELECTRIC RAILWAY.

No. 561,307. Patented June 2, 1896.



UNITED STATES PATENT OFFICE.

HENRY BRANDENBURG, OF CHICAGO, ILLINOIS.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 561,307, dated June 2, 1896.

Application filed May 22, 1895. Serial No. 550,295. (No model.)

To all whom it may concern:

Be it known that I, HENRY BRANDENBURG, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric Railways; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the letters of reference marked thereon.

This invention relates to improvements in underground or conduit systems of electric-railroad construction, and has for its object to provide an improved construction wherein, if so desired, the electric features may be auxiliary to a cable system or the same conduit may be employed for either or both systems.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a sectional elevation of a conduit-yoke and connected parts going to make up the completed road-bed. Fig. 2 is a similar view with the conduit arranged intermediate the track-rails. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a section on the line 4 4, Fig. 1. Fig. 5 is a detail section showing the manner of uniting the ends of the conductors.

Like letters of reference in the several figures indicate the same parts.

The conduit in the present instance is formed with a series of cast-metal yokes A of the usual U shape, and preferably having the usual bracket attachments A′ for the pulley-journals of a cable-road. Ordinarily these yokes end at the level of the base of the rail or top of the laterally-extending arms or cross-ties; but in my present construction I carry the sides of the yoke up to approximately the level of the road-bed, forming upward extensions A^2. At the upper ends of these extensions I form vertical bearing-surfaces *a* and horizontal bearing-surfaces *a′*, against which the inside of the angle-iron slot-rails B seat, and are secured by bolts *b* or otherwise. These angle-iron slot-rails are relatively wide, and to guard against any possible sagging at the edges I form recesses or sockets A^3 in the yokes at the base of the bearings *a*, into which sockets or recesses the downwardly-extending webs or flanges of the angle-irons fit. Thus without a positive rupture of the metal there can be no yielding.

The sides of the yokes are a sufficient distance apart and the slot-rails are wide enough to permit of the location of the trolley-conductors in the space immediately below the slot-rails and above the level of the ties or base of the track-rails. They are thus brought above the danger of being short-circuited by water or accumulations of dirt, and, furthermore, as they are located on each side of the vertical plane of the slot they do not interfere with a grip or other structure extending down into the body of the conduit, making it practicable to run both an electric and cable road with one conduit.

In my preferred construction brackets C, covered with vitreous or porcelain insulation *c*, are secured to the inside of the upward extensions of the yokes and provided on their ends with projections or studs C′, on which insulators C^2 are seated. The insulators in turn have seats for the trolley-conductors D, the latter being relatively heavy in cross-section and covered with insulation D′, save for an oil-channel D^2 in the top surface in which the contacts E′ of the trolley E run. This construction gives me a conductor practically covered with an insulating jacket or coat throughout its length, for while the oil will permit the trolley to make electrical contact yet it is an insulator and prevents the accumulation of moisture, which, in most constructions, is the occasion of so much leakage of the current.

The sections of the conductors are abutted and joined by split pins R, Fig. 5, seated in holes drilled in the ends of the conductor, thereby holding them in alinement and insuring a good circuit while permitting of the expansion and contraction of the conductor.

In most conduit-tramway constructions the track-rails are rigidly connected with the yokes of the conduit, and while this is highly desirable, because it insures the retention of the track-rails in proper position, yet it is objectionable because it not only forms an unyielding road-bed, causing the vehicles to grind and rumble, much to the passenger's discomfort, but it transmits all the shocks

and jars of the heavy vehicle-trucks to the walls of the conduit and in time causes them to disintegrate and get out of shape. With a view to overcoming these difficulties I have in the present structure made provision for connecting the track-rails with the conduit-yokes through a pivotal connection, which while it insures the parts being retained in proper relative position yet will allow of a sufficient elasticity of the said track-rails to overcome the objectionable feature mentioned. In the preferred construction the ties F, upon which the track-rails G are mounted, are connected by bolts H with the sides of the conduit, and to afford greater security the ends of the ties are in turn supported on longitudinal stringers I, which are preferably of wood. A chair spiked to the stringer is usually employed to support the tie, and when, as shown, the ties are made of T-iron the chair should be made with a slot-seat *i* for the web of the tie, and the two should be united by a bolt or pin fastening *i'* to allow for a certain movement of the parts one upon the other.

The top flange of the T-iron tie may be cut away to permit the tie to lie close to the yoke, as shown clearly in Fig. 3.

While in my preferred construction I have the ties extended out on one side only of the conduit, as in Fig. 1, and form one of the slot-rails with a wheel-flange S, yet I do not wish to be limited to this particular construction, for the conduit may be arranged between the tracks, as in Fig. 2, in which instance the ties branch out on both sides of the yokes.

Having thus described my invention, what I claim as new is—

1. In an electric railway, the combination with the conduit-yokes, of cross-ties pivotally connected at one end to the yokes, the rail carried by the outer end of the ties and the stringer pivotally connected with and underlying the outer ends of the ties; substantially as described.

2. In an electric railway, the combination with the conduit-yokes, of cross-ties pivotally connected at one end to the yokes, the rail carried by the outer ends of the ties, the stringer underlying the outer ends of the ties, the chairs on said stringer and pivotal connections between the chairs and ties; substantially as described.

3. In an electric railway a conductor having the external insulating-covering and a longitudinal uninsulated oil-channel on the upper surface for the trolley-contact; substantially as described.

4. In an electric railway, the combination with the conductor having the external insulating-covering and uninsulated oil-channel in the upper surface, of insulators supporting said conductor and brackets carrying the insulators; substantially as described.

HENRY BRANDENBURG.

Witnesses:
ALEX. S. STEUART,
THOMAS DURANT.