

(No Model.)

2 Sheets—Sheet 1.

J. B. LEGG & J. NILE.
ELECTRIC RAILWAY.

No. 428,499.

Patented May 20, 1890.

Fig. 1.

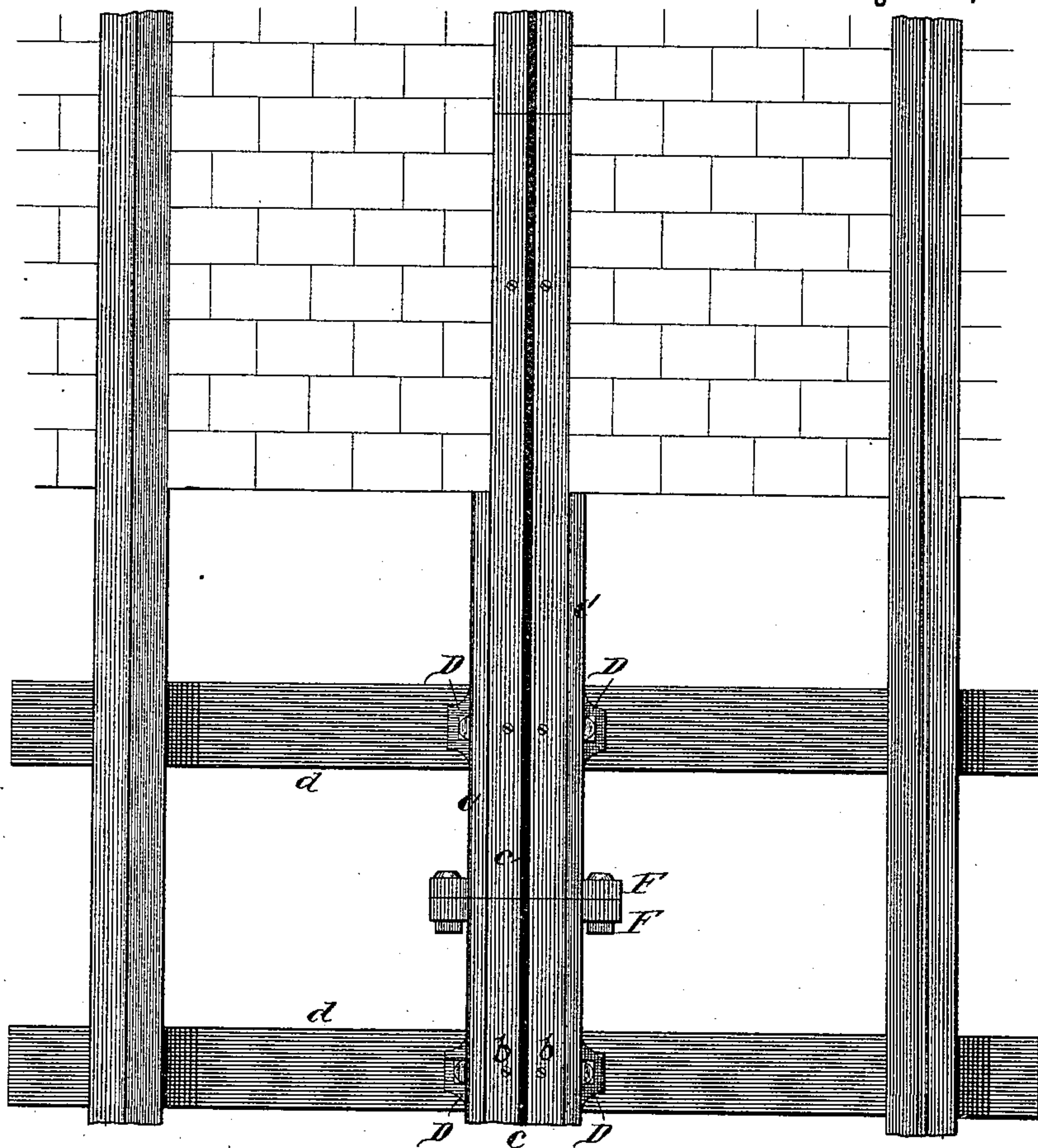
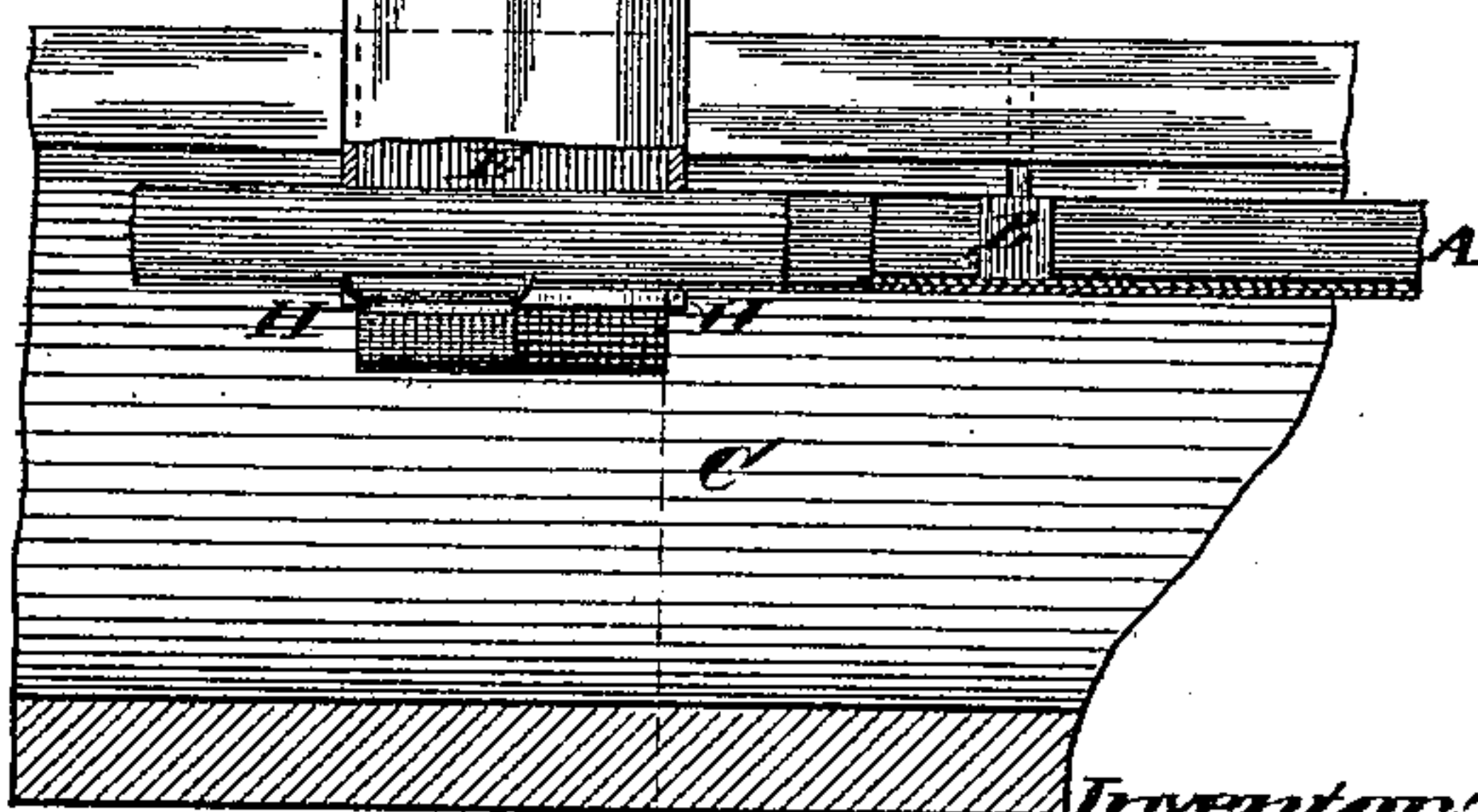
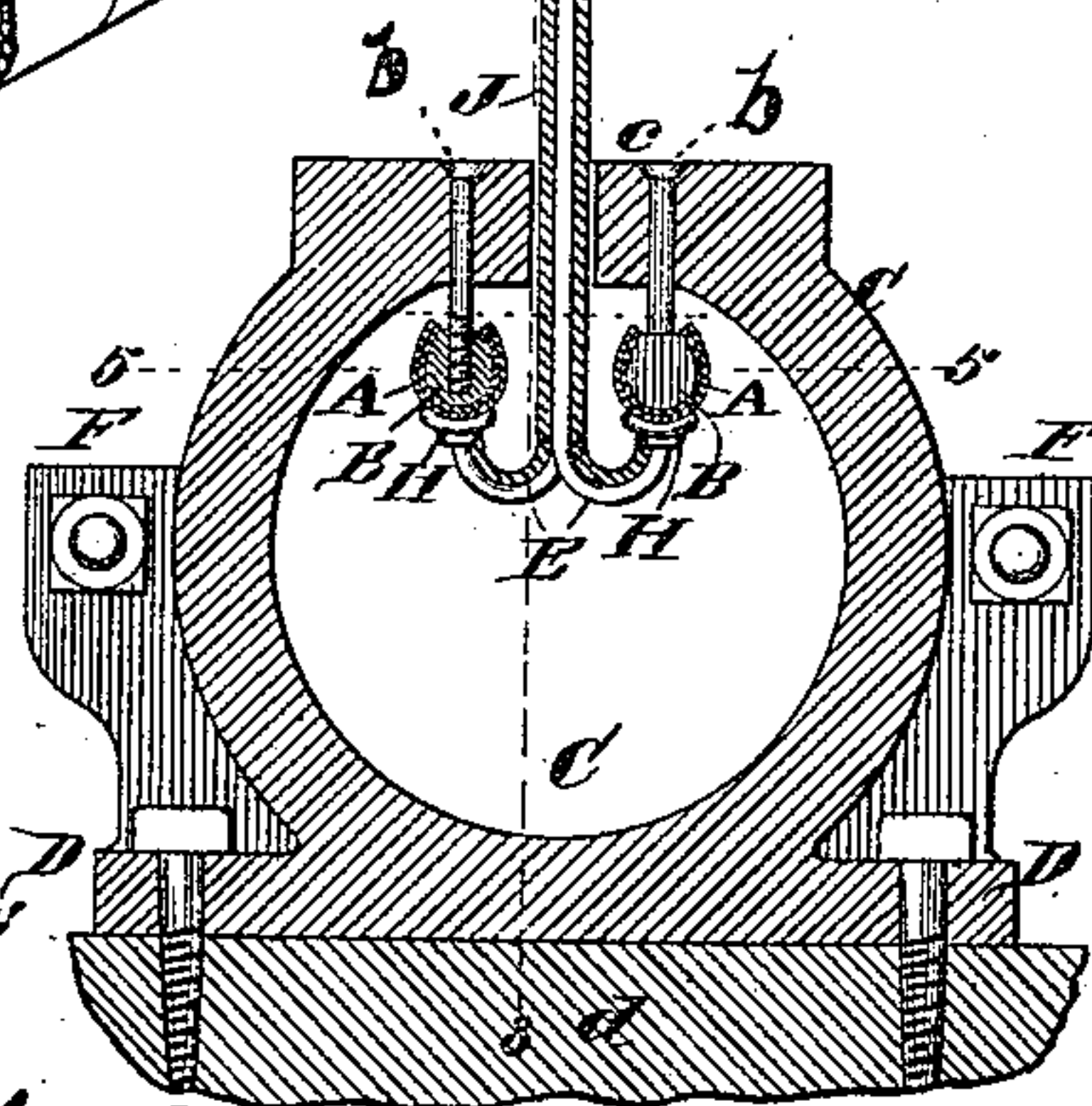
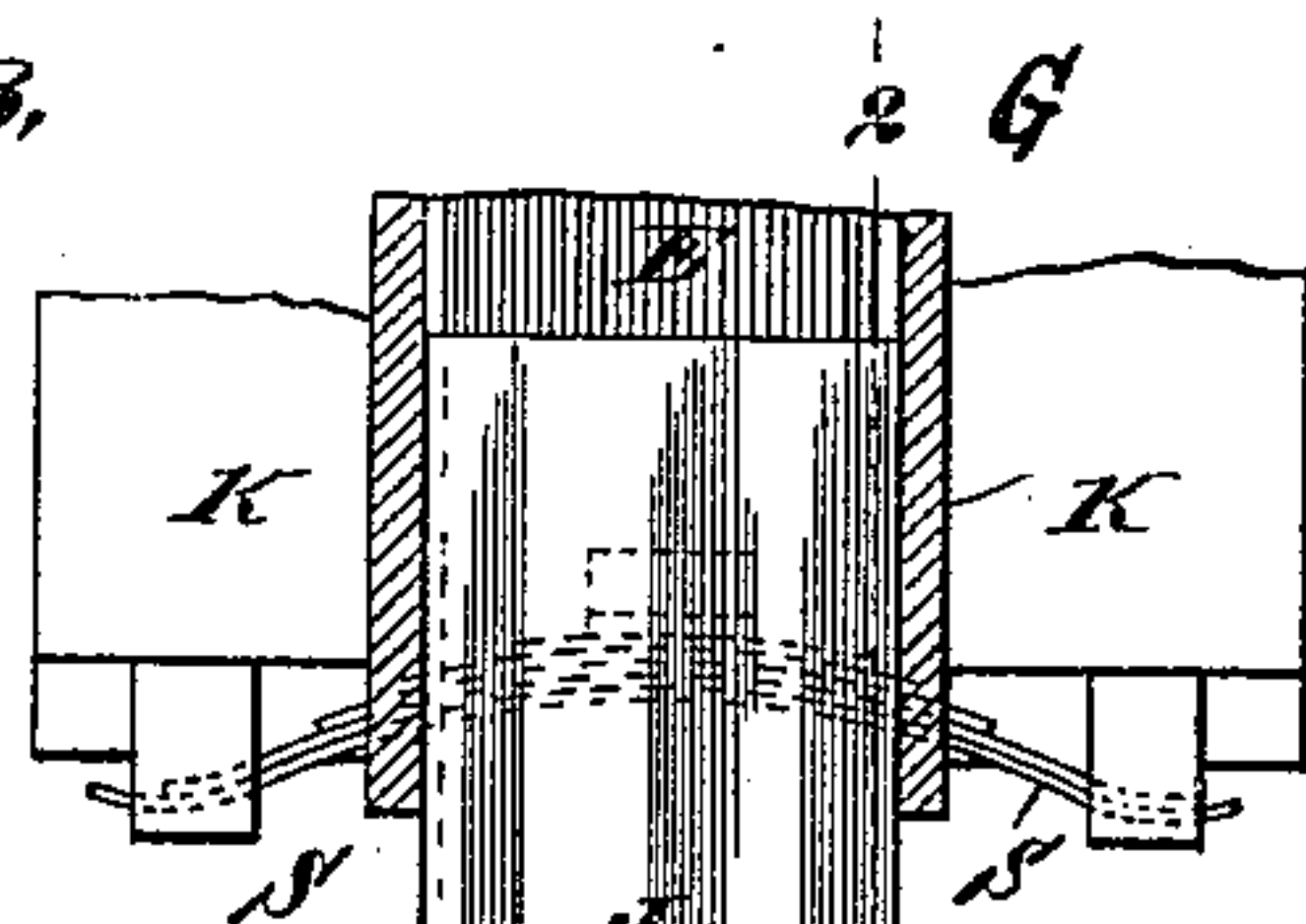
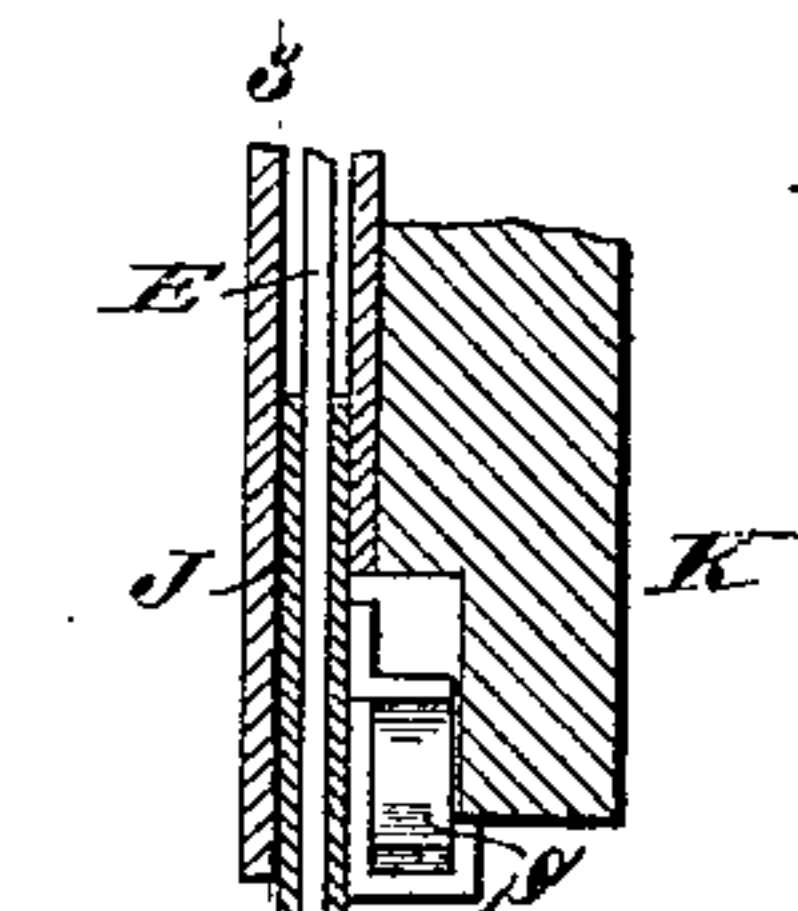
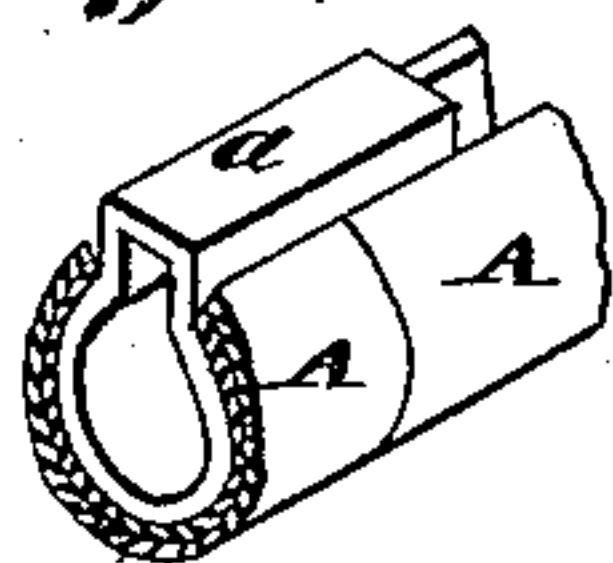


Fig. 2.

Fig. 3.

Fig. 4.



Attest;

Wm M Eccles.
R.B. Meriwether

Inventors:
J. B. Legg
John Nile

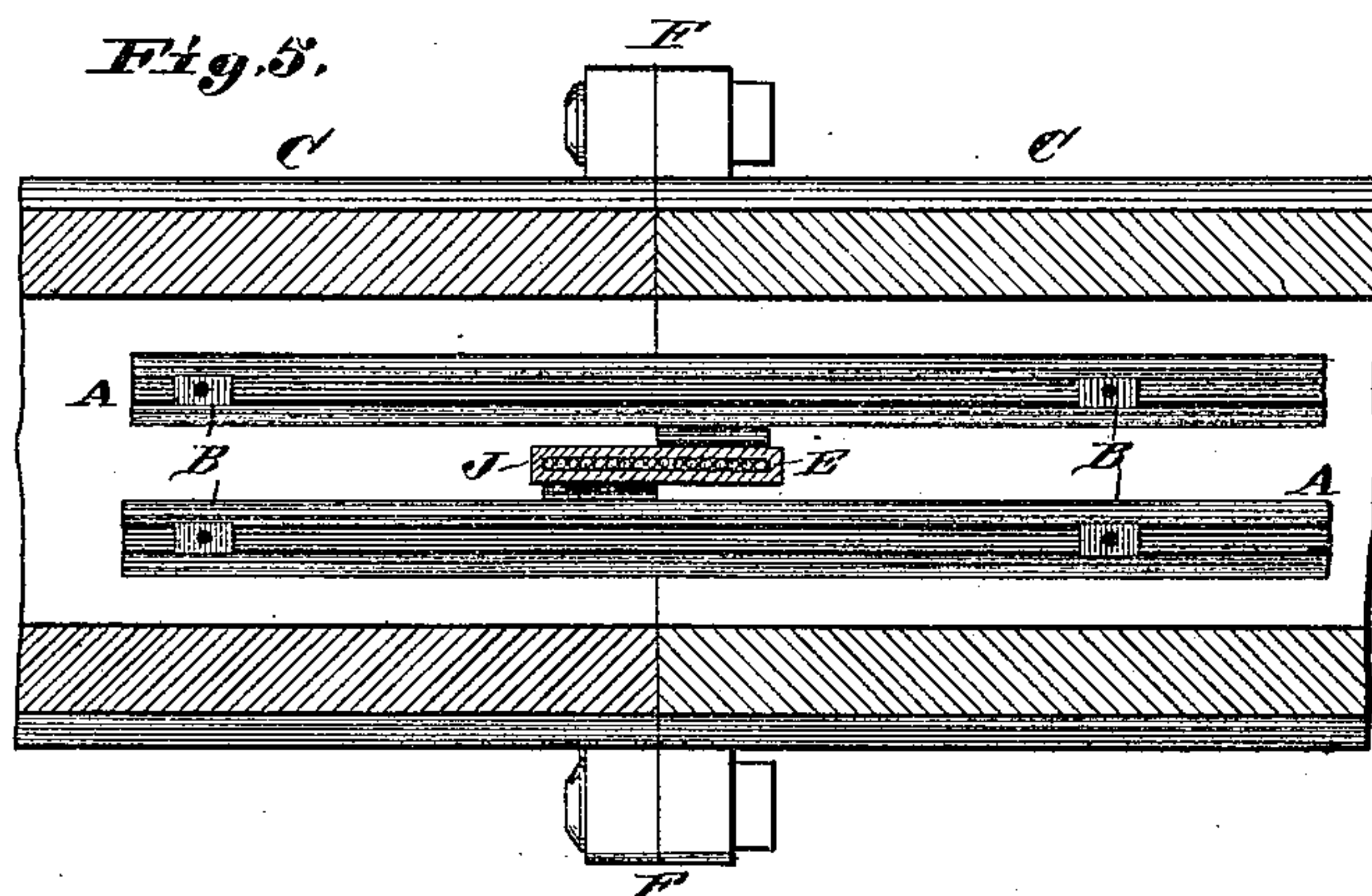
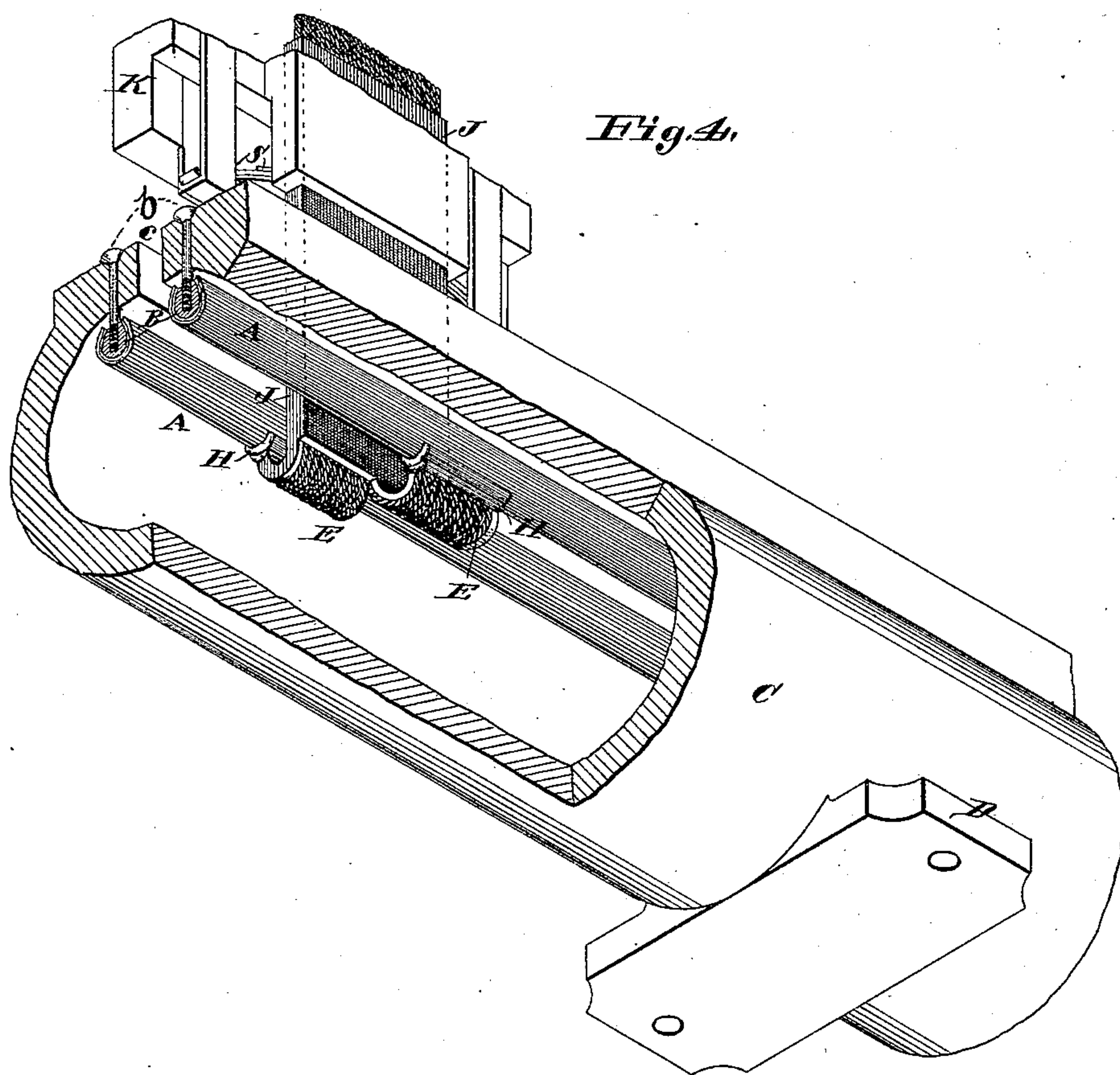
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2 Sheets—Sheet 2.

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ELECTRIC RAILWAY.

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Inventor;
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John Niles

UNITED STATES PATENT OFFICE.

JEROME B. LEGG AND JOHN NILE, OF ST. LOUIS, MISSOURI.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 428,499, dated May 20, 1890.

Application filed October 10, 1888. Serial No. 287,767. (No model.)

To all whom it may concern:

Be it known that we, JEROME B. LEGG and JOHN NILE, citizens of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

This invention relates to improvements in the underground or conduit system of electric railways; and it consists in certain novel features in the construction of the conduit, conductors, and contact device, as will hereinafter be more fully explained.

The objects of the invention are to construct a cheap and durable electric road which can be easily adapted and applied to all street-car roads with a minimum interruption of traffic and without disturbance and reconstruction of the tracks and ties already in use.

Another object is to prevent the induction or loss of the electric current by the arrangement of the conductors; also to construct the conduit so as to require a small space and be easily accessible for the contact device.

These objects are attained by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the road with a part of the road-bed removed, showing the connection of the conduit-sections and attachment of the conduit to the ties. Fig. 2 is a vertical section on the line 2 2, Fig. 3, through the conduit-plow or contact device and frame or support carrying the latter. Fig. 3 is a longitudinal section on line 3 3, Fig. 2. Fig. 4 is a perspective view of the conduit-plow and frame, part of the conduit being broken away. Fig. 5 is a section on the line 5 5, Fig. 2. Fig. 6 is a detail view showing the connection for sections of conductor.

A A are two conductors of tubular shape having a slot along one side and constructed of copper or other suitable material. These conductors are located on opposite sides of the conduit-slot within the conduit and close to the top, so that they are protected from weather and from interference by street vandalism. These conductors are made regular and smooth on the outer surface, so as to offer no resistance to the passage of the contact device over the surface. They may be con-

tinuous, but are preferably made in sections of equal length with the sections of the conduit. These slotted tubular conductors are provided with insulating attaching-plugs B, of hard rubber or equivalent material, which conform to and fit tightly in the inside of said conductors, and are held at the proper relative position to the conduit by means of screws *b*, passed through and having their heads countersunk in the lips or slot-rails of the conduit and then screwed into the insulating-plugs.

For connecting the meeting ends of adjacent sections A A of the conductors we employ a hollow metallic thimble *a*, which fits snugly the interior form of the conductors, has a protruding portion fitting the slot of the conductors for overcoming any twisting tendency and to facilitate manipulation, and, being made to overlap the seam and extend into each section, the ends are supported so as to always correspond in position, while the necessary expansion and contraction of the sections with changes in temperature are not opposed.

C is the conduit, made preferably in sections of convenient length, each section being cast in an integral structure approximately cylindrical and provided with perforated lateral flanges or ears F at each end for receiving the connecting-bolts and the bottom perforated flanges D, forming a base by which the sections are firmly seated on and secured to the cross-ties. This conduit is provided with the continuous slot *c* for the passage of the plow, and the plane horizontal lips or slot-rails, which form a portion of the upper surface of the road-bed.

d d are cross-ties of the road, and these serve to support the truck-rails and conduit-sections.

E E are two arms of the plow J, and each carries a number of insulated wires uniting to make up two conductors, which are connected to the contact-shoes H at one end, and, running upward, are adapted to be connected to the poles of the motor. The shoes conform to the surface of the conductors and are held in constant contact therewith by a spring acting on the plow and having a constant tendency to raise it. The wires are incased by the plow to protect them.

G is a sheath attached to the car, and in it fits the plow J, which, however, has a freedom of up-and-down movement and operates as a piston.

5 S is a spring mounted on the plow and having bearing on a frame K, to which may be attached the above-mentioned sheath G.

The conduit is made small in cross-section, inasmuch as the conductors are placed very
10 near the top, and the plow and contacts, making up the contact device, project but a short distance within the conduit, so that the conduit may be placed upon the cross-ties already set in a horse-railway, and the conduit
15 will not necessarily project above the general level of the street, or, if our system is to be used in the beginning, the amount of excavation is small.

The construction of the plow is very simple
20 and strong as well as effective. Its spring yields to every upward movement of the car-truck and compensates for every downward impulse. It will therefore appear that our system is simple and economical, yet effective
25 and durable.

The following is what we claim as our invention:

1. In an electric railway, a conduit formed of unobstructed sectional circular tubing C;
30 having the slotted upper side, the exterior horizontal flanges on the bottom by which it is supported, the transverse ears by which the sections are united, and the conductors depending from the slotted top, whereby an un-
35 obstructed conduit is formed, substantially as and for the purpose set forth.

2. In an electric railway, the combination of the unobstructed sectional tubular conduit

having the upper slotted side and the slotted tubular conductors hung from the sides of the slot and of substantially equal length with the conduit, said conduit having the exterior transverse ears for uniting the sections, and said conductors having the thimbles fitted in the ends extending through the conductor-
45 slots and affording a means of uniting and supporting the conductors, as set forth.

3. In an electric railway, the combination, with the conduit, of the hollow conductors, the insulating-blocks fitted at intervals in said
50 conductors, and the supporting-rods extending down from the top of the conduit on opposite sides of the slot and having the heads countersunk in the slot-rails and the lower ends secured in the insulating-blocks, all sub-
55 stantially as and for the purpose set forth.

4. In a conductor for electric railways, the combination of the tubular sections and the hollow thimble conforming to the interior of the sections and overlapping the joint, sub-
60 stantially as and for the purpose set forth.

5. In a conductor for electric railways, the combination of the slotted tubular sections and the hollow metallic connecting-thimble overlapping the joint and having the pro-
65 truding portion fitting the slot in the sections for overcoming the tendency to twist and for manipulation of the thimble, as explained.

In witness whereof we have set our hands
70 this 5th day of October, 1888.

JEROME B. LEGG.
JOHN NILE.

Witnesses:

WM. M. ECCLES,
R. B. MERIWETHER.