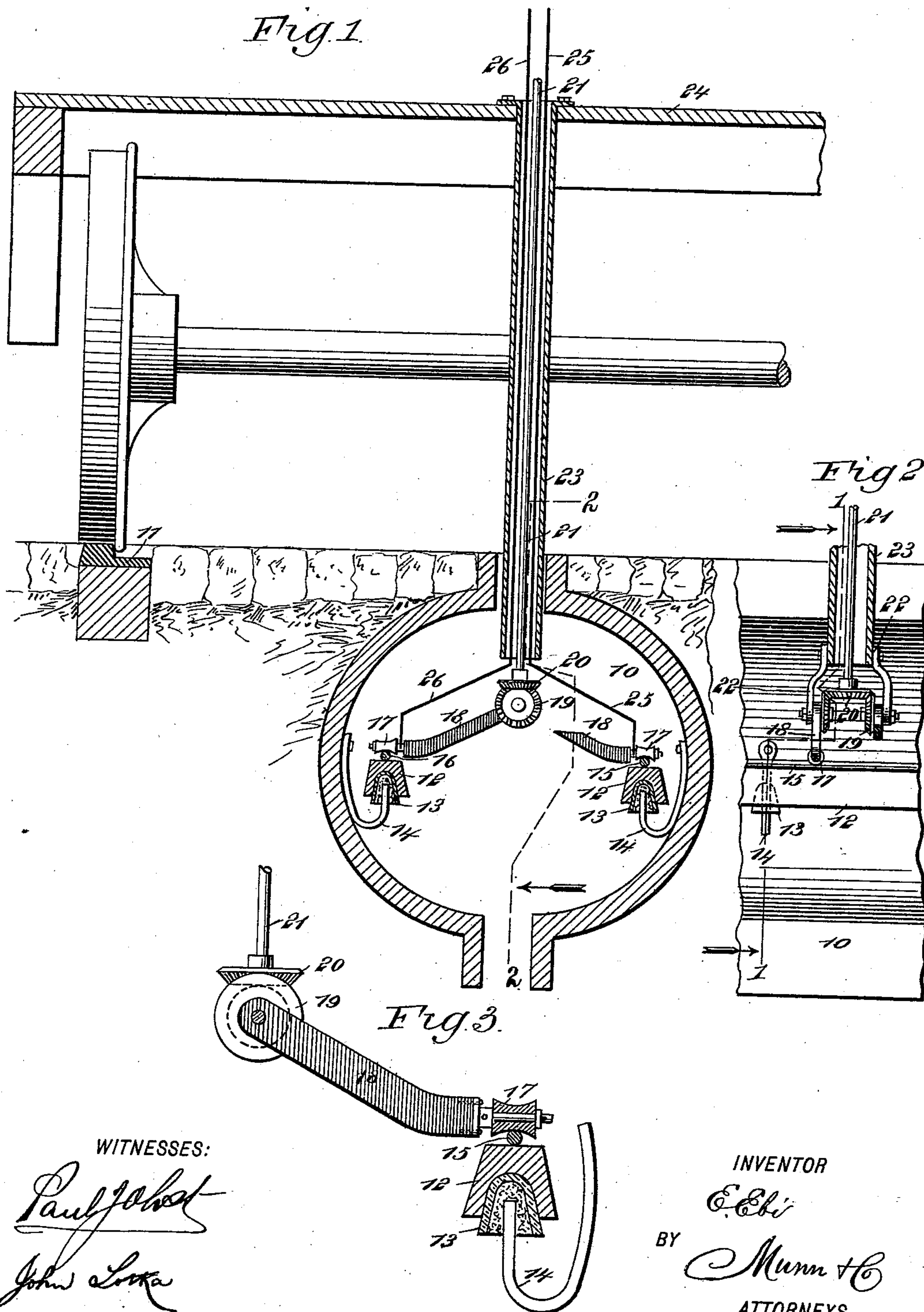


(No Model.)

E. EBI.
CONDUIT ELECTRIC RAILWAY.

No. 541,730.

Patented June 25, 1895.



UNITED STATES PATENT OFFICE.

EDWARD EBI, OF CEDAR RAPIDS, IOWA.

CONDUIT ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 541,730, dated June 25, 1895.

Application filed July 5, 1894. Serial No. 516,605. (No model.)

To all whom it may concern:

Be it known that I, EDWARD EBI, of Cedar Rapids, in the county of Linn and State of Iowa, have invented a new and Improved
5 Conduit Electric Railway, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of electric railways, in which the line wire is carried in an underground conduit, and my invention contemplates the use
10 of an all metallic circuit, that is, a line and return wire with which a trolley makes contact, although, if desired, the return may be effected through the wheels and rails of a car
15 in the ordinary manner.

The object of my invention is to produce a railway of this kind, having a trolley of the greatest simplicity, with its wheels arranged to run on the electric wires or conductors,
20 and having a very convenient means of lowering or raising both wheels to throw them in and out of contact with the wires.

A further object of my invention is to provide a suitable means of supporting and perfectly insulating the wires.
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To these ends my invention consists of certain features of construction and combination of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a section on line 1 1, Fig. 2, the conduit and car being also shown in section. Fig. 2 is a detail longitudinal section of the conduit, and shows the trolley in connection with the conducting-wires; and Fig. 3 is a detail sectional view of the trolley and its connection with the line-wire.
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The conduit 10 may be of any usual construction and it is arranged in the usual way between the track rails 11. Extending longitudinally through the conduit, preferably
45 at opposite sides, are wooden stringers 12, which support electric wires and which make very fair insulators themselves, but to provide for perfect insulation the stringers are supported on glass or porcelain insulators 13, like those of the ordinary telegraph wires,
50 and these are secured to hangers 14, which are

fastened to the sides of the conduit and which may be supported in any convenient way.

The conducting wires 15 and 16 are supported on the stringers 12 and on these wires
55 run the trolley wheels 17, which are journaled on the outer ends of the arms 18 of non-conducting material. The inner ends of the arms 18 are connected with the beveled gear wheels 19, which mesh with a horizontally rotating beveled gear wheel 20 on the lower end
60 of the operating rod 21. The wheels 19 are supported on the brackets 22 which may be of any suitable construction and which are supported on the lower end of the tube 23, which
65 tube is secured to the car 24 and forms a casing for the operating rod 21, and the wires 25 and 26, which lead from the trolley wheels up through the tube 23 and are connected with the motor in the usual way. The current
70 thus passes from the wire 15 through one of the wheels 17, the wire 25 to the motor, and back through the wire 26 and the other trolley wheels 17 to the wire 16, but it will be understood that if desired one of the arms 18
75 may be dispensed with and the return made through the rails in the usual way.

It will be seen that by turning the shaft or rod 21 the arms 18 may be raised so as to lift the trolley wheels 17 from the wires, and this
80 enables them to pass smoothly over any obstructions.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—
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1. A trolley for conduit electric railways, comprising oppositely projecting and pivoted arms, trolley wheels on the outer ends of said arms, a vertical rod mounted to turn, and toothed gearing between the inner ends of
90 the arms and the lower end of the said rod, whereby by turning the said rods the arms may be raised or lowered, substantially as described.

2. A trolley for conduit electric railways, comprising a vertical rod, a gear wheel on the lower end of the rod, arms, trolley wheels on the outer ends of the arms, and gear wheels on the inner ends of the arms, said gear wheels meshing with the gear wheel of the vertical
100 rod, substantially as described.

3. In a conduit electric railway, the com-

5 bination with the connecting wires arranged in the conduit, of a tube, bevel gear wheels carried by the lower end of the tube, arms connected with the gear wheels and projecting in opposite directions, trolley wheels on the outer ends of the arms, a vertical rod projecting up through the tube, a gear wheel on the rod and meshing with the gear wheels carried by the tube, and wires connected with the trolley wheels on the ends of the arms and extending up through the said tube, substantially as described. 10

EDWARD EBI.

Witnesses:

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