(No Model.)

A. J. SMITH.

UNDERGROUND CLOSED CONDUIT SYSTEM FOR EELECTRIC RAILWAYS.

No. 541,338. Patented June 18, 1895.

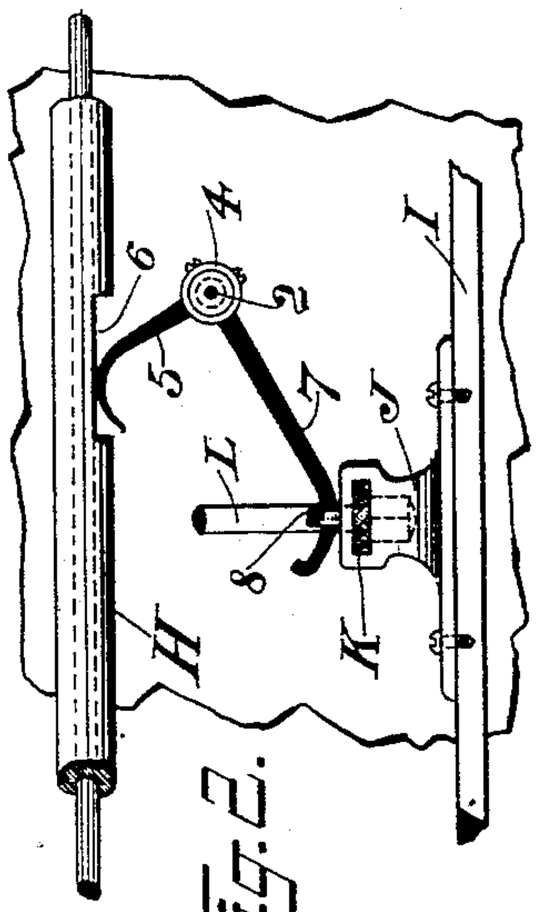

Fig. 2.

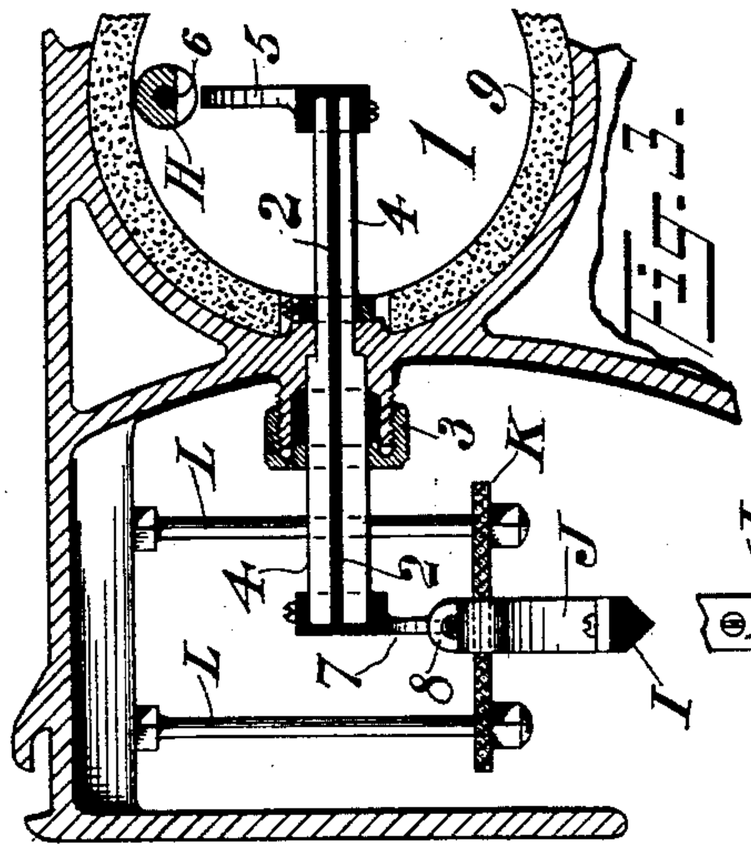

Fig. 3.

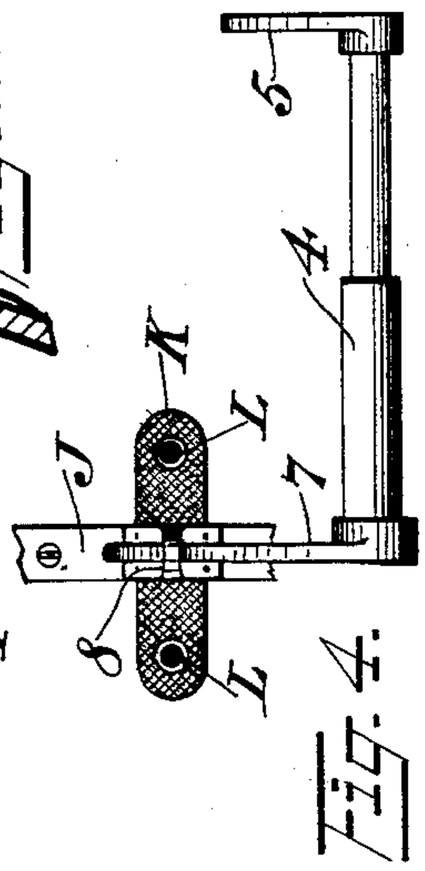

Fig. 4.

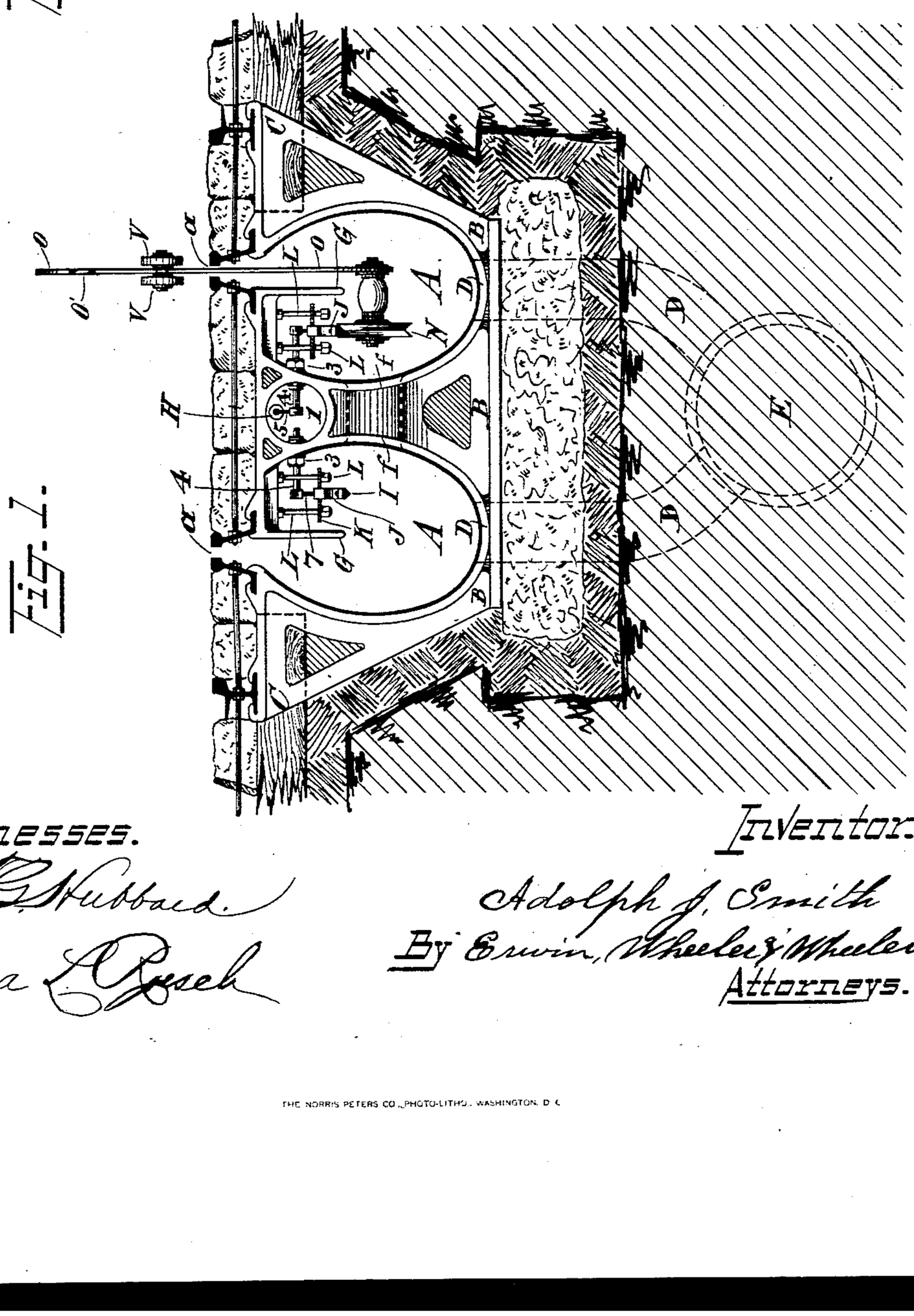

Fig. 1.

Witnesses.

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UNDERGROUND CLOSED-CONDUIT SYSTEM FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 541,338, dated June 18, 1895.

Application filed June 6, 1894. Serial No. 513,664. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH J. SMITH, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Underground Conduit Systems for Electric Railways, of which the following is a specification.

My invention relates to improvements in underground conduit systems for electric railways.

The objects of my invention are, first, to provide more simple and complete means for the prevention of electrical induction and radiation; second, to provide means whereby a single conducting wire can be made to serve the purpose of both tracks, in double track systems; third, to provide means for making and breaking contact by a quick and positive movement.

In the following description reference is had to the accompanying drawings, in which—

Figure I is a cross-section of a double-chambered conduit, showing my invention and its relation to the trolley-chambers. Fig. III is an enlarged detail of a cross-section drawn through the axis of one of the connecting-shafts of the contact mechanism. Fig. II is a detail end view of the contact mechanism. Fig. IV is a top view of the same.

Like parts are referred to throughout by means of the same reference letters and figures.

In a former application I have exhibited a conduit similar to the one herein shown, with double trolley chambers AA and trolley tracks II, but with the conducting wire H located in the trolley chambers directly above the trolley track. In my present invention, however, I have located an insulated wire H in an independent or separate chamber 1, which is constructed in juxtaposition to one side of the trolley chamber A, or between the trolley chambers AA in double chambered systems being supported in the trestle or framework between said trolley chambers, as shown in Fig. I. At intervals along the run of each trolley chamber, a rocking shaft 2 projects through stuffing boxes 3 in the side of the chamber into the conducting chamber 1, said shaft being either coated with the insulating material 4, or set in insulated stuffing boxes.

In the conducting chamber 1, a contact arm 5 projects from the shaft 2 at substantially right angles to the axis thereof, and is adapted to be rocked by the shaft into and away from contact with an exposed portion 6 of the conducting wire H. This contact arm may be constructed in various forms, preferably so formed as to prevent sparking or flashing when making and breaking contact. The conducting wire may also be provided with a contact plate in order to prevent injury or wear in making the contact.

In the trolley chamber A, the sectional trolley track I, having its sections connected together by insulating material, is suspended by the metallic bracket J underneath the insulating plate K, which is adated to move vertically upon the hang bolts L, as described in my former application.

An actuating arm 7 of the shaft 2 projects loosely through a retaining loop or staple 8 on the bracket J, in such a manner that the vertical movement of the trolley track I will oscillate or rock the shaft 2. This actuating arm projects downwardly and laterally at right angles from the shaft 2 in the vertical plane of the trolley track, and as it projects loosely through the staple 8 it pushes through when rocked upward by the pressure of the trolley on the trolley track, and draws partly out as the trolley passes and the track sinks to its normal position. By thus taking up the so-called "lost motion" of the actuating arm, the reciprocal movement of the trolley track is adapted to rock the arm without straining the parts and without danger of displacing the trolley tracks.

The contact arm 5 and actuating arm 7 are so located upon the shaft 2, with reference to the conducting wire and trolley track, that the elevation of the trolley track, by the underrunning trolley N will push upward on the actuating arm 7 and bring the contact arm 5 into connection with the conducting wire at its exposed surface 6, and thus electrically connect the conducting wire through the shaft 2, the actuating arm 7 and bracket, to the trolley track section and trolley. As the trolley track sinks to its normal position in the rear of the trolley, the staple 8 draws the actuating arm 7 downward, and rocks the arm 5 away from contact with the conducting wire.

By varying the proportionate lengths of the arms 5 and 7, the arm 5 may be moved at any deisred speed, and to any desired distance from the conducting wire when out of contact therewith.

It is obvious that the construction herein described may be applied to any underground conduit system having a movable trolley track, and that the conducting wire II may be located at any convenient point in the chamber 1, the shape and direction of the arms 5 and 7 being altered to suit the various requirements of the different locations in which the parts are placed.

It is also obvious, that in the double chambered conduit shown in Fig. I, a single conducting wire can be made to serve the purpose of both tracks of the railway by means of shafts 2 entering the chamber 1 alternately from each trolley chamber.

The conducting chamber 1 may be constructed of, or lined with ordinary sewer piping 9, or any non-conducting material and the entire chamber may be made water tight, if desired.

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

1. In an underground conduit system for electric railways, the combination with a conduit having one or more trolley chambers, of an independent conducting chamber and conducting wire located therein, insulated metallic shafts communicating at intervals from the conducting chamber to the trolley chamber, provided with a contact arm in the conducting chamber adapted to be rocked into contact with the conducting wire, and an actuating arm in the trolley chamber, a reciprocating trolley track connected with said actuating arms and supported independently in said trolley chamber, and means for taking up the lost motion of the actuating arm when rocked by the reciprocal motion of said track, substantially as described.

2. In an underground conduit system for electric railways, the combination with a conduit having one or more trolley chambers, of an independent conducting chamber and conducting wire located therein, insulated metallic shafts communicating at intervals from the conducting chamber to the trolley chamber, provided with a contact arm in the conducting chamber adapted to be rocked into contact with the conducting wire, and an actuating arm in the trolley chamber, together with a reciprocating trolley track connected with said actuating arms, but supported independently thereof from the top of said trolley chamber, substantially as described.

3. In an underground conduit system for electric railways, the combination with a double trolley chambered conduit of an independent conducting chamber and conducting wire located therein, insulated metallic shafts communicating at intervals through water-tight stuffing boxes from the conducting chamber into each of the trolley chambers, said shafts being provided with a contact arm in the conducting chamber, adapted to be rocked into contact with the conducting wire, and an actuating arm in the trolley chamber, together with a reciprocating trolley track connected with said actuating arms but supported independently thereof, substantially as described.

4. In an underground conduit system for electric railways, the combination with a conduit having one or more trolley chambers of an independent conducting chamber and conducting wire located therein, insulated metallic shafts communicating at intervals from the conducting chamber to the trolley chambers, provided with a contact arm in the conducting chamber adapted to be rocked into contact with the conducting wire, and an actuating arm in the trolley chamber, together with an independently supported movable trolley track, provided with a staple or slotted guide, through which the actuating arm projects, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ADOLPH J. SMITH.

Witnesses:

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