

No. 680,704.

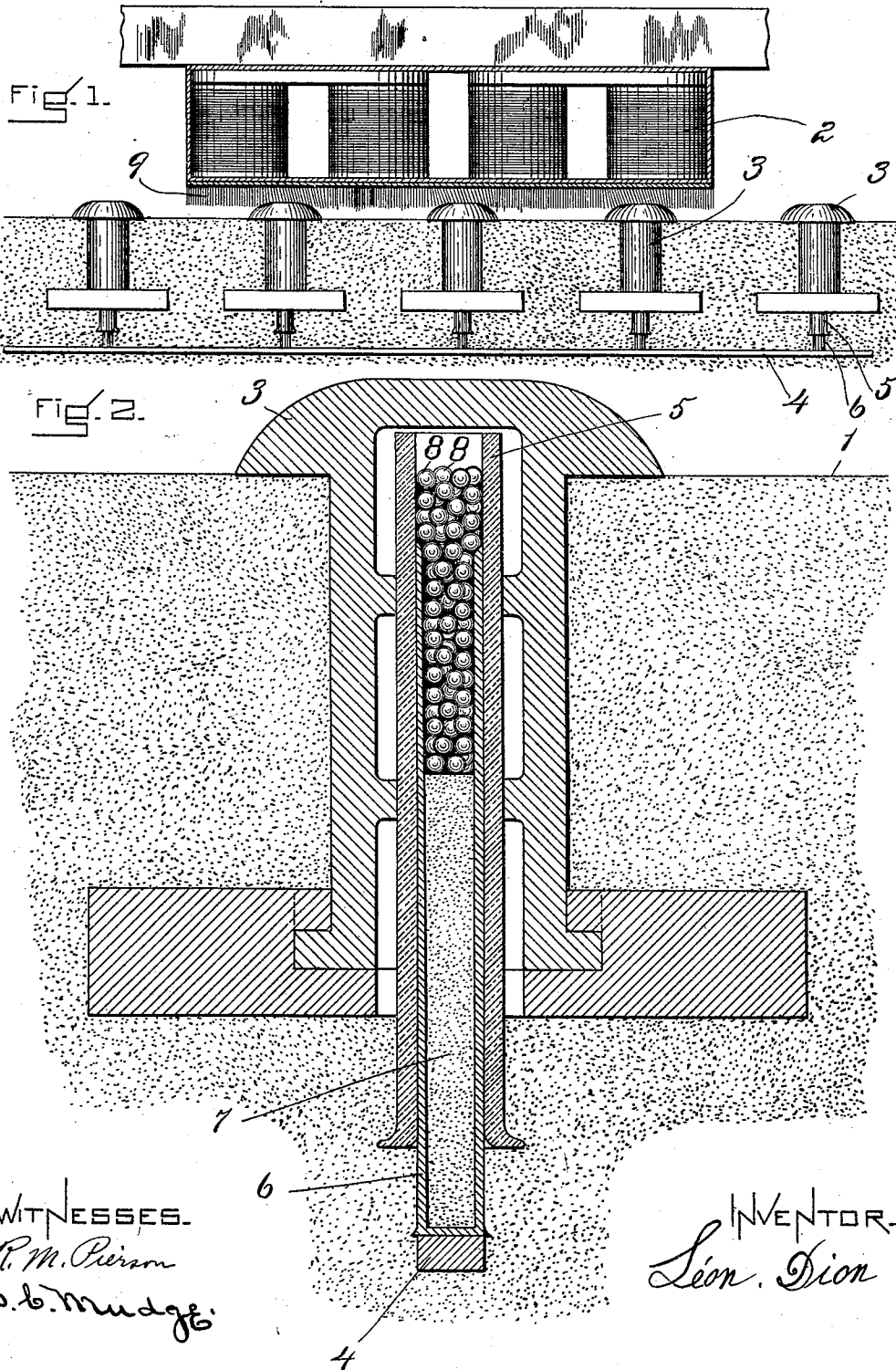
Patented Aug. 20, 1901.

L. DION.

ELECTRIC TRACTION ROAD.

(Application filed Nov. 24, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

LÉON DION, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ELECTRICAL SAFETY TRACTION COMPANY, OF WEST VIRGINIA.

ELECTRIC-TRACTION ROAD.

SPECIFICATION forming part of Letters Patent No. 680,704, dated August 20, 1901.

Application filed November 24, 1900. Serial No. 37,628. (No model.)

To all whom it may concern:

Be it known that I, LÉON DION, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric-Traction Roads, of which the following is a specification.

This invention relates to closed-conduit or closed-pocket electric-traction roads employing an unexposed feeder, an exposed conductor, with which a collector on the car runs in contact, and means adapted to be moved by the attraction of a magnet carried by the car for connecting said feeder with successive portions of the exposed conductor as the car passes along.

The present invention has for its object to simplify and reduce the cost of roadways of this character and to insure the proper action of the movable parts.

The invention consists in certain novel features of construction and arrangement, which I shall now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a longitudinal section of a roadway constructed in accordance with my invention, showing also the car-magnet. Fig. 2 represents a transverse vertical section on an enlarged scale.

The same reference characters indicate the same parts in both of the figures.

In the drawings, 1 represents a roadway having embedded in it at frequent intervals hollow metallic studs or cups 3 3, composed of non-magnetic material and having their tops exposed above the surface of the roadway, so as to constitute sections of an exposed conductor.

4 is a buried or unexposed continuous feeder or main conductor.

Within each of the studs 3 is located a tube 5, extending to or nearly to the top of the cup and consisting of insulating material, such as porcelain. Within each tube 5 is a metallic tube or shell 6, having its lower end in electrical connection with the feeder 4 and open at the top, said shell being filled part way up with material 7, such as cement. The shell 6 terminates at its upper end short of the top of the stud 3, while the tube 5 projects above the upper end of said shell. The upper ends of the shell and tube constitute

an upright tubular receptacle, in which is contained a connecting member comprising numerous small spherical bodies 8 8, resembling shot and composed of magnetic material, such as soft iron. Normally this mass of shot rests by gravity on the filling 7 and is present in such quantity that when thus resting the upper end of the mass does not reach into contact with the stud 3.

2 represents an electromagnet carried by the car, and 9 represents a collector or contact member carried thereby and adapted to run in contact with the tops of the studs 3 3. The passage of the car-magnet over the top of each stud 3 will cause the mass of magnetic shot 8 8 to be lifted by magnetic attraction into contact with the top of the stud. The quantity of shot present is in such relation to the dimensions of its container and the position of the shell 6 that when thus raised into contact with the stud 3 the shot will extend from said stud to the shell, and hence form an electric connection through the shell from the stud to the feeder 4. It will be noted that the shot 8 8 are collectively capable of forming this connection, but are individually incapable of so acting. The electrical connection is formed by the contact of the shot with the shell 6 and stud 3 and by the intercontact of the individuals of the mass. The more points of contact there are throughout the mass the less will be the electrical resistance, and it follows that the shot, should be quite small and numerous. I do not intend to confine myself in this particular to the proportions which may be indicated by the drawings, since the same principle of action would be maintained throughout a wide variation in the size and quantity of the particles of the connecting member. Since the shot 8 8 are unconnected and capable of free individual movement, certainty of action without clogging or failure of connection is insured.

It will be observed that the described construction is simple, and by virtue of this simplicity and the materials which may be employed the cost of a roadway constructed in accordance with my invention will be relatively small.

Spherical bodies or particles for the movable magnetic member are superior to parti-

cles of an irregular shape in that a mass composed of spheres will have greater mobility and the spherical shape can be imparted very cheaply by methods similar to those used in ordinary shot manufacture. It is to be noted that the mass of shot 8 as a whole has a sliding contact with and is continually in contact with the conductive shell 6, thus insuring an effective electric connection.

I do not limit myself to the details of construction here shown and may variously modify the same without departing from the spirit of the invention.

I claim—

1. In an electric-traction road, an unexposed feeder, an exposed conductor, and a member adapted to be moved by magnetic attraction to connect said feeder and exposed conductor, said member comprising numerous small free spherical magnetic bodies collectively adapted to act as the connector but individually incapable of so acting.

2. In an electric-traction road, an unexposed feeder, an exposed sectional conductor and a series of pockets interposed between said feeder and conductor and each having a conductive top, a vertically-elongated lower conductive member, an insulating part between said conductive top and lower member, and a connecting member laterally confined in said pocket and vertically movable in sliding contact with said lower conductive part, said connecting member comprising numerous free magnetic bodies collectively adapted to connect the said conductive top and lower member to complete the electric connection between the feeder and exposed conductor, but individually incapable of so acting.

3. In an electric-traction road, an unexposed feeder, an exposed conductor, a laterally-confining container interposed between said feeder and conductor and having a lower conductive part connected with the feeder and an upper insulating part, and a connecting member inclosed in and laterally confined by said container and adapted to be lifted by magnetic attraction to connect the exposed conductor and the conductive part of the container, said member comprising numerous free magnetic bodies collectively capable of acting as the connector but individually incapable of so acting.

4. In an electric-traction road, an unexposed feeder, an exposed conductor, a conductive tube connected with the feeder, an insulating-tube projecting above said con-

ductive tube toward the exposed conductor, and a connecting member confined in the receptacle made by said tubes and adapted to be lifted by magnetic attraction to connect the conductive tube with the exposed conductor, said member comprising numerous free magnetic bodies collectively capable of acting as the connector but individually incapable of so acting.

5. In an electric-traction road, an unexposed feeder, an exposed conductor, an upright tubular receptacle interposed between said feeder and conductor and comprising a lower conductive part connected with the feeder, and an upper insulating part, and a connecting member contained in said receptacle and adapted to be lifted by magnetic attraction to connect the exposed conductor with the conductive part of the receptacle, said member comprising numerous small free spherical magnetic bodies or shot collectively capable of acting as the connector but individually incapable of so acting.

6. In an electric-traction road, an unexposed feeder, an exposed sectional conductor, and a series of pockets interposed between said feeder and conductor and each having a conductive upper member, a conductive lower member, and a connecting member comprising numerous free magnetic bodies collectively adapted to connect said conductive upper and lower members when lifted by magnetic attraction, but individually incapable of so acting, the said connecting member being confined in permanent contact with the lower conductive member.

7. In an electric-traction road, an unexposed feeder, an exposed sectional conductor, and a series of pockets interposed between said feeder and conductor and each having a conductive upper member, a vertically-elongated conductive lower member and a connecting member vertically movable in sliding contact with said lower conductive part and confined in permanent contact therewith, said connecting member comprising numerous free magnetic bodies collectively adapted to connect said conductive upper and lower members when lifted by magnetic attraction but individually incapable of so acting.

In testimony whereof I have affixed my signature in presence of two witnesses.

LÉON DION.

Witnesses:

M. B. MAY,

A. D. HARRISON.